

**LD+A**

Lighting Design + Application  
May 2000

PUBLISHED BY THE IESNA

# New York City

**ABC's Times Square Home**

***Martin Guerre's Road Trip***

**A Manhattan Shopping Spree**

**Fine Dining at Quantum**



TOYOTA

THE GREAT  
EXPRESSION  
OF THE  
MIND

THE  
GREAT  
EXPRESSION  
OF THE  
MIND

DISCOVER CARD

HAPPY  
2000

WIN A MILLION  
THE BEST OF THE BEST  
THE BIG JACKPOT

CHIP  
YEAH!

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ON THE COVER: New York City was the place to be when the new millennium dawned. ABC's new Times Square studios had a ringside seat in the middle of the excitement and revelry. Photo illustration: Ida Mae Astute/ABC

It must be difficult for a non-journalist to come up with a topic for a regular column and make it interesting month after month. However, Ian Lewin is doing a great job so far with his President's Points column. Most recently, I enjoyed his very clever column on the various sub-species within our lighting world (Dec. '99). I have met representatives of each of them!

Regarding the subject of white vs. yellow light at roadway lighting levels, I have taught several semi-

## LETTERS TO THE EDITOR

nars on this subject in the past 6 months or so, having been inspired by Dr. Lewin's article "Road Scholar" back in the March 1999 *LD+A*. I did some additional reading (of the background papers) and made some further inquiries of others whose opinions I respect, and then put together my 1-hour seminar to get the word out. Mostly I get polite nods; I think people are skeptical and slow to accept change. But if Mark Rea is meeting resistance, then at least I'm not alone.

I would like more information on the ad hoc group and subcommittee on this subject that Dr. Lewin mentions at the end of his column so that I can keep up with the latest information as it becomes available. I might even like to participate.

*Dawn De Grazio, LC  
Dunham Associates  
Minneapolis, MN*

### **The Editor replies:**

*The subcommittee on lamp spectral effects on roadway light levels has been meeting as time permits. However, as of this writing, there have been no drafts submitted. LD+A will keep readers apprised of the committee's progress in future editions of IES News. For more information, feel free to email Ian Lewin at lightsci@worldnet.att.net*

I think the comments in the January 2000 edition of *LD+A* by Robert Clear regarding the published article by Ian Lewin on the measurements of the relative effectiveness of lamps at mesopic lighting levels is encouraging for the future of lighting, particularly as related to visual performance.

Controversy is the seed that generates the spark for change, which in the ongoing analysis will improve our overall understanding and application of these light sources. But I do want to add one additional comment as this interesting controversy continues: Please add fluorescent to the comparison tables! It might complex the table comparison data but it will certainly make it more complete. If I can be of any assistance in this regard, let me know and I will be happy to contribute my thoughts and knowledge with respect to the fluorescent light source possibilities. I know one lamp manufacturer interested in such a comprehensive comparison, and I suspect others would be.

*Ed Hammer, FIES, FIEEE, LC  
GE Lighting*

The article "Glow and Behold" by Ian Ashdown in the December 1999 *LD+A* was very interesting and informative. However, he indicates that photoluminescent products have a typical luminance of 1—2 mcd/m<sup>2</sup> and suggests they are suitable for use in life-safety applications. Does his definition of life-safety applications include exit signs? Typically when measurement methods are used, UL 924 requires an internally illuminated exit sign to have a minimum initial luminance of 2.5 fl (8560 mcd/m<sup>2</sup>) and 1.5 fl (5136 mcd/m<sup>2</sup>) at the end of 90 minutes. It would not appear that photoluminescent exit signs would be suitable for use in this application. Could the author please comment on this?

*Billy G. Helton  
Lithonia Lighting  
Decatur, Georgia*

### **Ian Ashdown responds:**

*Mr. Helton raised an important point with regards to the definition of "life safety" as I used it in*



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my article. Under the heading "Standards and Codes," I outlined the requirements of several state building codes and maritime standards. My comments were specific to photoluminescent materials.

These materials are clearly not suitable replacements for internally illuminated exit signs as mandated by UL 924 and similar fire safety codes. Any significant amount of smoke in a room would render them invisible as soon as the lights go out.

Photoluminescent tapes and strips are useful in smokeless environments where there is a possibility of having no natural or artificial lighting available. Because these products are being mandated in building codes, it is important for lighting designers to be aware of their properties and limitations. As Mr. Helton reminds us, it is equally important to be aware of the various building code requirements, and to ensure that we specify the correct products for the job.

I am grateful to Mr. Helton for bringing up the issue for clarification.

Regarding Bob Crelin's response to Ed Morel's letter in the November 1999 *LD+A*, the National Institute of Justice's (NIJ) review he referred to did not include Kate Painter's latest work in Dudley and Stoke, U.K., published over the past few years.

The joint author of that review, John Eck, is now familiar with that research. He accepts that lighting can indeed reduce crime and will say so in the next review, which is currently being undertaken.

In the same review, Dr. Painter's studies were the only British evaluations to reach level 4 (on a scale of 1—5) for methodological rigor.

Incidentally, Dr. Painter has submitted an abstract of a paper on the Stoke and Dudley lighting and crime research for the 2000 IESNA Annual Conference.

Patrick E. Baldrey  
Sally Foster  
Urbis Lighting Limited  
Basingstoke, England

Mr. Erhardt's series of articles on Adaptation-Reflectance

design are a most welcome combination of methodology and commentary on current lighting design methods. They cover both a method of selecting visual conditions suitable for conditions. The most welcome aspect, however, is the return to the response of the human visual system as the determining factor in the luminance to be provided in a design – in short, the adaptation level.

Mr. Erhardt suggests the use of a thoroughly visual device—the Luminometer—as the means of determining the adaptation level appropriate for a given task. The luminometer has the great advantage that it evaluates directly to the response of the visual system. It has the disadvantage that it necessarily evaluates the luminance conditions of the task under only one lighting condition—one that is especially designed to reduce veiling reflections to insignificance, and that admits of only one set of surround luminances.

This may not be all that bad, because it would tend to return an answer which assumes a lighting system of high quality, designed in accordance with the recommendations of the IES regarding such things as luminance ratios, luminance types and locations, etc. Intrinsicly, it gives a threshold condition which then can be modified by such field factors ("fudge factors") as may be appropriate.

I think it has a lot of merit. In the past, we have often used means of evaluation, such as the well-known "telephone-book" method of determining illuminance by increasing the illuminance level until the type becomes easy to read. This is essentially a type of Luminometer which already has some of the field factors built in.

I also like the categorization of adaptation levels into highly significant visually different levels, namely powers of 10. The IES currently does this, but with a 1-2-5-10 scale, based on the common observation that it takes an increase in luminance of at least 2:1 to perceptively increase the ease of seeing a task. Maybe a 1-3-10 scale would be an acceptable compromise.

What bothers me most, howev-



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er, is the determination of Adaptation Levels itself. It is reasonably agreed that the adaptation process sets the sensitivity of the visual system so that the minimum brightness (not luminance) ratio detectable by the viewer is the same at all luminance levels. In other words, the eye is adjusted to the maximum contrast sensitivity for each luminance level (Weber's "Law"). And that would be just fine with me if we could only agree on just what that means in a visual field. Is the adaptation level then set by the task brightness? Or the average field brightness? Or the task plus a specified surround average brightness? Or what? Certainly we all know that an eye sees a given task entirely differently when a dark field or a light field surrounds it. And one look at a Mondrian shows that the eye does not return the same brightness sensation for two equally luminous areas, which have different surrounds.

Anyone who has ever gotten up from watching a television program (in an otherwise dark room—not recommended!) to get a snack notices immediately that he has to navigate to the kitchen by extra-foveal vision since his eyes in the foveal region have adapted to the television screen, while the extra-foveal region has adapted to the much lower surround brightness. So you have a television-screen-shaped black spot in your visual field until it readapts. Now, how do you determine the adaptation level? The Luminometer will assume that the adaptation desired is that of the task, and forget the surround. Mr. Erhardt's computation determines adaptation on the basis of the average of the entire visual field. Values determined by the two methods will be highly different, depending on the surface luminance in the two cases.

An even greater problem concerns cases where extra-foveal response is the most important, such as in driving an automobile, where the adaptation of the peripheral visual area is critical in calling the driver's attention to a potential hazard. Since this area is the most important when street lighting is involved (Should we be lighting the sidewalks instead of the street?).

Perhaps different adaptation determination should be used for different classes of tasks.

Certainly there is little doubt that the state of adaptation of the visual system—however defined—is more intimately related to the performance of our lighting designs than is any determination of illuminance or luminance per se. Our current recommendations are consensus values, and are implicitly based on the assumption of "typical conditions" or "recommended system characteristics." I can't fault them on this; what else could you do? But I agree that the time has come to at least recognize the implications of what we are doing regarding illuminance recommendations; and putting them on the basis of adaptation levels, defined if necessary according to task groupings and determined visually, not with a light meter. Particularly with the recent emphasis on quality of the visual environment, we should put a firm basis on the quantity aspect to go with the quality.

To those who blanch at the

thought of even more complexity in the lighting design process, may I say that with today's computational machinery and visual representation facilities, any process for determining lighting systems characteristics based on any particular adaptation definition can be readily handled. And who ever said that lighting design was simple anyway?

*Bill F. Jones, P.E., F.I.E.S.  
Consulting Illumination Engineer  
Orange, CA*

There is plenty of information within the pages of each issue of *LD+A* that I thoroughly enjoy without my critiquing the magazine's content. However, I would like to offer a few comments based on what I have noticed within the magazine's pages.

It seems to me that an awful lot of space is devoted to unmeasurable lighting levels and glitzy restaurants, bars, casinos, interiors, and commercial building lobbies rather than criteria that should be coming from the numerous

IESNA committees. Most of these committees have their own publications that their members need and use and who do not design the above-mentioned type of project. These technical publications serve as the art and SCIENCE knowledge in the practice of lighting design. Not that I don't appreciate the designs of these fancy projects; I've been very involved with many of them. I just feel that we have so much more to offer than simply sexy interior photos.

Most of the lighting specification community who deal in more practical projects work with the recommendations of the IESNA committees and the recommended standards to design "by the numbers." What many are weak on is the designing of projects with qualitative lighting systems that add sizzle to their designs where consideration to the human environmental needs should come into play instead.

I believe LD+A can publish installations showing how this is done. This will add a lot of value for our members who are in these design fields.

You can go ahead and keep putting in unmeasurable fiber optics, remote low-voltage pendant cuties strung a capella or some other low and/or high voltage ceiling pendant, recessed, or wall mount glass, plastic, metal (usually pierced) or alabaster art design that has no meaningful lighting measurement to the reader. And if anyone does these types of designs, that luminaire becomes history as it will never be copied for a similar project.

That being said, I have nothing but continued good thoughts for you and your staff at LD+A. I'd be lost without you.

Sam Zussman  
Philadelphia, Pennsylvania

After reading several months of articles written under the banner of "Adventures in Lighting," it has become obvious that this column is simply free advertising for the author and his company.

While I welcome someone writing about fiber optics, these articles are not written to educate the reader about this technology, but are

indeed promotional and commercial. While I do necessarily fault the author, it has always been the position of LD+A editorial to promote education, not specific products. SuperVision should be paying for this kind of advertising. Perhaps opening this column to other technologies or writers would be more educational.

Dawn Hollingsworth, Vice-  
President,  
Los Angeles Section, IESNA

#### **The Editor responds:**

*"Adventures in Lighting" began last year when Brett Kingstone of SuperVision volunteered to write an article for LD+A based on his various travels around the world and about fiber optic installations. However, in conversations with Brett, we felt that his tales could be part of an ongoing column. Thus, "Adventures in Lighting" was born. Despite Brett initiating the column, it has always been open to other LD+A readers and IESNA members from all aspects of the lighting industry. The purpose of such a column was to put a different face on the task of lighting--the "adventures" that often take place when working in a foreign land or with a new or emerging technology.*

*"Adventures in Lighting" is not the sole property of Brett Kingstone, just as "Energy Concerns" is not the sole property of Bill Warren or "Latitudes on Luminance" likewise belonging to Ian Ashdown. All of LD+A's columns are open forums for the entire IESNA membership. However, until we have new volunteers who want to write for us, we have to depend on those authors who have graciously volunteered their time and effort again and again, month after month.*

*I invite Ms. Hollingsworth and all LD+A readers to unselfishly give of their time to inform their fellow IESNA members about their own "Adventures in Lighting."*

I have just received the February 2000 LD+A and enjoyed the articles on residential lighting. Janis Huston's article, "Pacific Over-tures," was of particular interest

since I live in nearby Bellingham, Washington. There has always been a friendly rivalry between the state of Washington and British Columbia. White Rock, BC is just across the border and about 35 miles away. I am wondering how the people of White Rock managed to change the name of the body of water that they are located on from the Straits of Georgia to the Pacific Ocean.

There just happens to be the Island of Vancouver that is between them and the Pacific Ocean. The island is not a small one as it is over 300 miles long. My view includes Bellingham Bay, the Straits of Georgia, Vancouver Island, and the Canadian Cascades. It would be wonderful if I could also claim a view of the Pacific Ocean. Please tell me how they did it!

Wendell E. Phelps, Past  
President,  
Oregon and Inland Empire  
Sections  
Bellingham, WA

#### **Janis Huston responds:**

*I certainly don't want to take responsibility for renaming the Pacific Ocean! I wanted to draw the readers into the experience of the home by using the term of the Pacific Ocean to describe the body of water on the west side of this continent. As I referred in my article to the emotional responses that light creates in us all--so it is with a view, and people from around the world can identify with the feeling of viewing the all-powerful oceans of the world. Architecturally and structurally, this home encompassed the power of the ocean and that was what I was emphasizing in the article.*

*Having just returned from two months in southern California and viewing the Pacific Ocean from Pelican Hill (south of Newport Beach) out to Catalina Island, I have to say that the expansive view from this area out to Vancouver island (which is actually named the Straits of Georgia) is similar.*

I would like to take this opportunity to welcome all of you to LIGHTFAIR INTERNATIONAL 2000 in the Big Apple (for those of you actually attending). It's appropriate that New York City is the home of the 2000 event since this is where it all got started 11 years ago. This show has grown by leaps and bounds and we expect this year's event to be bigger and better than ever.

For the fourth year in a row, *LD+A* is proud to sponsor a track of educational seminars. This year we are pleased to present those seminars that make up the "Urban Lighting: City Lights" track.

The first seminar of this track is on Tuesday at 4 p.m. and is entitled "Advanced Lighting Technology Outdoors: Union Square Park." The speaker is Peter Jacobson with ConEd. If you remember the short piece we ran in the October 1999 *LD+A* on Union Square Park, then you know that this is one New York landmark that has undergone quite a facelift in recent years and lighting played a major role.

On Wednesday morning at 8:30,

Nicholas Goldsmith, Principal with FTL Happold in New York, will give his seminar "Lighting Tensile Structures." This will give the attendee some information on lighting with a variety of different source and fabric combinations and show what kind of design freedom is possible by using the various forms and shapes of fabrics.

Charles G. Stone II, Principal with Fisher Marantz Stone in New York, will conduct his seminar, "Transportation Lighting Systems: Beam Me Up," on Thursday morning at 8:30. Attendees will be in for quite a ride as Stone discusses the various types of lighting implemented for transportation systems around the world.

Later at 10:30 on Thursday morning, Rogier van der Heide, Principal with Hollands Licht in Amsterdam, The Netherlands, will give a unique case study in his seminar, "Lighting an Urban Landscape." This case study involves the relighting of a European town center where architects from six different countries contributed to the design.

"Lighting the Machine: The Art of Industrial Architecture" will take place Thursday afternoon at 2. The

## NEWMAN'S NOTES

speakers for this seminar have appeared on the pages of *LD+A* more than once and, I'm sure, will again in the future. Mark Major and Jonathan Speirs are award-winning principal designers with Speirs and Major and Jonathan Speirs and Associates in London and Edinburgh, respectively. They will discuss how illuminating "found" structures in the urban landscape can contribute to the overall aesthetic and celebrate both light and architecture.

These seminars sponsored by *LD+A* are only five out of a total of 31 seminars and seven workshops being offered at LIGHTFAIR 2000.



Mark A.  
Newman,  
Editor,  
*LD+A*

Don't forget that the entire conference program qualifies for CEU credits in accordance with guidelines set forth by the AIA, ASID, and the IIDA. The IESNA will grant CEUs for all non-business presentations, all of which provide NCQLP Lighting Education Units.

And, of course, it's never too early to start planning for LIGHTFAIR INTERNATIONAL 2001. High rollers and low rollers alike will converge on Las Vegas May 29 – June 1. For more information, go to [www.lightfair.com](http://www.lightfair.com).

### From Germany with Light

This past March, I was invited to be part of a very select group to attend the first annual Light + Building International Trade Fair in Frankfurt, Germany. Only two other American magazine editors also made the trip—Christina Trauthwein from *Architectural Lighting* and Charles Linn from *Architectural Record*.

To say that the Light + Building show was overwhelming would be an understatement. There were over 1800 exhibitors (1141 were lighting exhibitors) from 46 countries filling up over 100,000 m<sup>2</sup> of exhibit space in eight different buildings. There were only 15 manufacturers exhibiting from the U.S., including Lutron, SuperVision, Fiberstars, Energy Savings, Inc., and LexaLite, to name just a few. I would imagine that the low U.S. turnout could be partly due to the fact that this was a new show; it replaced the lighting portion of Hanover Fair and by its debut, was not a proven commodity. Such doubts should subside since over 100,000 visitors from 93 countries attended the first Light +

Building show.

There were also two representatives from LIGHTFAIR in attendance—Renee Gable, Executive Director of Conference and Marketing, and Libby Morley, Executive Director, Trade Shows and Exhibits. Like me, they were also in awe by the sheer size of the show. I was only in Germany for three days and I still feel like I barely scratched the surface of all that the show had to offer.

One major difference between Light + Building and LIGHTFAIR was the seminars that were offered. Light + Building only offered a handful of seminars to attendees and most of these were about new technologies. On the other hand, LIGHTFAIR's 30+ detailed sessions cover a gamut of topics from Airports of the Future to Internet Marketing Solutions and virtually everything in between.

Despite the size of the German show, LIGHTFAIR's conference and educational program is still second to none. I am always amazed at the variety of seminars available at LIGHTFAIR, not to mention the quality of the speakers.

While the German show was impressive, it was primarily European-focused, despite there being attendees from all over the world. I think that for a number of the Americans who were in attendance, the experience was definitely a valuable learning tool. It can't hurt to know what manufacturers are doing in other parts of the world. Also, for those lighting professionals who often work overseas, it would be handy to have catalogs and spec sheets from ALL foreign manufacturers, especially when American-made products are not always available in other parts of the globe.

It was an honor to be invited to this show and represent *LD+A* and the IESNA in Germany. Would I recommend you attend the Light + Building show? Yes, I would, especially if you design lighting or fixtures. Many of the European manufacturers are teetering on the proverbial cutting edge and some of the luminaire designs were quite stunning. Even the lighting in some of the common areas of the Messe Frankfurt Trade Fair facilities was something to behold and much more daring than typical designs in U.S. convention halls.

While I won't go into detail here, let's just say that the lighting designers who contributed to Messe Frankfurt have found every possible use for the MR16! The press-room alone would make a nice feature in any architectural lighting magazine.

Not only was I constantly amazed by the fixtures being created overseas, I was also in awe of many of the exhibitors' booths. Some booths were bigger than most of the houses I've lived in! Like me, I think you will find that the Light + Building show is an interesting and worthwhile use of your vacation time.

That being said, there is no way that anyone in the lighting profession should forego LIGHTFAIR in order to attend the German show. In my opinion, LIGHTFAIR is the premier event for anyone in the lighting field in the U.S. or abroad. Aside from attracting all of the major American lighting companies, the workshops and seminars are invaluable learning tools for today's lighting professional.

The next Light + Building show is scheduled for April 14–18, 2002 in Frankfurt. For more information, go to the show's website at [www.light-and-building.de](http://www.light-and-building.de)

Recently, EPRI's Lighting Research Office convened a symposium entitled *Vision at Low Light Levels*. The focus of this conference was to discuss and explore the details of seeing under

facets of comparative performance for these two sources. For example, Drs. Sam Berman and Robert Clear pointed out that metal halide sources are available in a wide range of spectral power distributions and resulting correlated color temperatures; this means that a broad-brush evaluation for metal halide will not be very accurate. Specifically they say, "...HPS and MH sources are sufficiently close in performance, and there is sufficient variability between different lamps, that sweeping generalizations about the advantages of one source or the other should be avoided."<sup>1</sup>

Dr. Robert Levin also commented

topic visual response). And in situations involving peripheral vision, the far reaches of our retinas have a higher density of rod cells, with only a few cone cells. Although in higher light levels the peripheral rod cell response would wash out compared to the cone cell response, in the mesopic range we would experience a combined response.

The result of this anatomy is that if we concentrate on a small object (one that subtends only a small visual angle), we use only our cones to see this object; there is only a photopic visual response. If we use only our peripheral vision in very low light conditions, the rod sensors will provide the predominant response: scotopic. Most visual tasks at moderate to low light levels, however, will use a combination of both rods and cones to provide a mixture of scotopic and photopic response. Few of us, except perhaps for astronomers, prefer to work under light levels so low that we have no photopic visual effects. If we need to, we usually turn on a flashlight or other source to improve the lighting.

Let's look at an example of how this works. Driving on a road at night, we usually concentrate on where the headlamps illuminate the roadway. The small area where we closely look uses the cone-cell rich fovea, so there is a predominately photopic visual response. However, movement to the side of the roadway will stimulate retinal receptors outside the fovea, where rod cells predominate (with a scotopic response). The result? We have a photopic response where we concentrate our vision, but a mostly scotopic response elsewhere. Vision proves to be more complicated than a simple model would suggest, and confounds finding a simple, optimum light source for mesopic tasks.

One of the key results of this symposium was to highlight the continuing need for vision research. In spite of the many results and findings presented, all participants realized that our knowledge gaps in vision science prevent us from optimizing our lighting efforts.

1. *Vision at Low Light Levels*, EPRI, 1999, TR-110738, Palo Alto, CA, page 128.

## LATITUDES ON LUMINANCE



John  
Kesselring

mesopic conditions. This column will discuss only a few of the interesting items and perspectives discussed at the symposium.

Mesopic vision is where the two types of visual response—photopic and scotopic—overlap. Photopic vision is the type that most of us use at normal light levels, provided by the color-sensitive cone receptors in the retinas of our eyes. At very low light levels the rod sensors take over, providing black-and-white scotopic vision. Mesopic vision starts perhaps as high as 10 cd/m<sup>2</sup>, and definitely as the light level drops to 3 cd/m<sup>2</sup>. Scotopic vision takes over completely at about 0.01 cd/m<sup>2</sup>. To experience a complete transition from photopic through mesopic to scotopic, simply observe the sequence of twilight fading from bright sunset to gray dusk to a full star-lit night.

Mesopic vision is important for outdoor activities such as transportation (twilight and night driving, walking, etc.), security, surveillance, and retail sales. Any task related to nighttime outdoor activities always employs mesopic vision. With such a wide range of tasks performed under mesopic light levels, there is a universal interest in mesopic vision. While some people are consciously oblivious to mesopic visual effects, they affect almost all of us.

### HPS vs. MH

Many symposium participants were interested in determining whether high pressure sodium (HPS) or metal halide (MH) light sources would perform better in mesopic light level applications. Although this question remains unanswered (at least in a general sense) many presenters shared

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efforts

that metal halide lamps typically change spectral power distribution during life, so if you use a scotopic/photopic (S/P) ratio as a lighting design parameter, it may not work so well as the lamps age.

### Photopic Response Based On Two-Degree Field

Another interesting facet presented is that the photopic visual response curve is based on a two-degree sample. If we concentrate on the two-degree source, as in a test situation to establish the photopic response curve, all of that test sample light would fall on the central area of the fovea in our retina. That area does not contain any rod receptors, only a dense complement of the three types of cone cells that detect colors. On the other hand, real-world situations may have targets that subtend larger angles, so they would involve some rod cells (along with their sco-



Terry McGowan  
Director, EPRI  
Lighting  
Research  
Office



Larry Ayers  
Director, EPRI  
Lighting  
Information  
Office

You must read Naomi J. Miller's article, "Good Warehouse-keeping" in the February 2000 issue of *LD+A* to learn how she successfully used T8 fluorescent lamp fixtures to light a 300,000+ ft<sup>2</sup>

## ENERGY CONCERNS



Willard L. Warren, PE, LC, FIESNA

Staples Corporation warehouse and distribution center with mounting heights as high as 47 ft.

"Conventional wisdom" states that industrial spaces, with high mounting heights have to be lighted with HID sources because fluorescent fixtures reputedly can't "punch" the light down that far. Typically, industrial buildings have so many tall vertical obstacles in them (machines, racks, ducts, etc.) that if you use fluorescent units, 30 percent more lumens than the calculations call for, must be provided in order to compensate for the losses due to "vertical interference."

Staples Corporation had used HID in their other warehouses, but Ms. Miller proved to the company and to the utility, Connecticut Light and Power, that T8 fluorescent lamps in highly efficient industrial fluorescent luminaires would provide a better lighting job and save a considerable amount of energy compared to an HID system. By using fluorescent lighting in the Staples warehouse, over 60 kW in demand and 430,000 kW hours in annual usage was saved, enough to pay back the higher initial cost of \$70,000 in 25 months. This earned a \$65,000 rebate from Connecticut Light and Power's energy conservation program, reducing the net pay-back.

There are several reasons why T8 systems can now be used in high mounting height applications. One is the improved lamp efficacy achieved with electronic ballasts. The old T12 RS or slimline fluorescent systems, with magnetic ballasts, were yielding about 60 lm/W, while the new T8 lamp/electronic ballast combination reaches an efficacy of over 90 lm/W. On the

Staples project, Naomi Miller specified luminaires with high gloss white parabolic shaped reflectors and 20 percent uplift. Because the diameter of the T8 lamp is only 1-inch compared to 1.5-inches for the T12 lamp, the optical efficiency of the luminaire is improved at least 5 percent, and the downlight component can have a narrower photometric distribution.

Naomi also used bi-level lighting in the warehouse by controlling 80 percent of the fluorescent units with occupancy sensors that turn them off when there's no one in the space.

This raises another issue. The first 32 W T8 electronic ballasts used instant start circuitry which gave us parallel lamp operation, maximum efficacy (lumens per W), and 0° F starting. The ballast manufacturers correlate lamp life with the frequency of switching lamps on and off because the filament sputters every time the lamp is started. They recommend that rapid start electronic ballasts be used instead of instant start, with the promise of longer lamp life when lamps are frequently cycled, "such as with the use of occupancy sensors."

The lamp manufacturers rate the life of T8 lamps on instant start ballasts at 15,000 hours, and at 20,000 hours on rapid start ballasts, assuming 3 burning hours per start. Obviously, if the lamps burn more than three hours each time they are started, their life expectancy increases, and if they are on continuously, they will last approximately 30,000 hours on either ballast. But what about light output? The lumen output of a lamp that has burned 30,000 hours may not raise the needle on any light meter, and as Ira Gershwin's lyric goes, "Methuselah lived 900 years, but who calls that livin', when no gal would give in to no man, what's 900 years."

The rapid start electronic ballast, which costs a couple of extra bucks, and uses two more watts of power to heat the lamp filaments, promises 5000 extra hours of lamp life. With fluorescent lamps that last for years, it's not easy to predict lamp life, unless you can accelerate the life tests. But nobody really knows exactly what accelerated

duty cycle to use to simulate the effects on lamp life of "frequent switching," whatever that is. Occupancy sensors keep the lamps on for 15-30 minutes after an occupant leaves a space to prevent too-frequent switching, and logging data from the manufacturers of occupancy sensors indicate that

The good news is that the ballast manufacturers quickly responded with a new "program start" ballast

people are out of their private offices 30-40 percent of the time. And the bulk of that is in big chunks of two hours or more at a time, so occupancy sensors have been unfairly blamed for shortening lamp life when there's been an area of uncertainty regarding the prediction of lamp life and its relation to lumen output.

Researchers at the Lighting Research Center at Rensselaer discovered that the controlling factor to determining the effect on lamp life from frequent switching has to do with filament temperature at the time of starting. In a paper published last November in the *IEEE Transactions*, the LRC tests revealed that when a fluorescent lamp arc is struck, the temperature of the filament must be 4.25 times as high because room temperatures minimize filament sputtering. When a lamp is turned off it takes about 5 minutes for the filament to cool down and stabilize. The LRC researchers recommend that new ANSI Standards establish filament temperatures as the guide to T8

lamp starting, and a duty cycle of 5 minutes on and 5 minutes off for an accelerated test to predict how many starts the filament can tolerate. The LRC tests also indicated that the filament damage caused by the higher voltage starting of the instant start ballast is minimized by the short starting time and that there isn't much difference in T8 lamp life expectancy between using rapid start or instant start electronic ballasts.

The good news is that the ballast manufacturers quickly responded with a new "program start" ballast that provides the optimum filament starting temperature. The bad news is that the program start ballast costs a bit more than the instant start ballast and uses more power. Instant start uses 58 W for two 32 W T8 lamps with 0° F starting. Rapid start uses 62 W (7 percent more) with 50° F starting, and "program start" uses 60–63 W, and 0–32° starting, depending on whose ballast you buy.

The lamp companies are not

minutes. Besides, lamp switching is not the only thing that degrades a fluorescent lamp's output. Have the ballast manufacturers given us a solution for which there is no real problem?

The ballast companies have done a great job improving lighting energy conservation. So well, in fact, that in five years, by mutual agreement with the U.S. Department of Energy, they will not be selling magnetic ballasts for most linear fluo-

rescent lamps. And there are ballast features coming that are very attractive, like universal voltage (120-277 V ballasts), universal wattage (17, 25, and 32 W lamps on the same ballast), low profile cans for slimmer fixtures, and ballasts with lamp safety shutdown protection. But please, ballast manufacturers, don't take away the highly efficient, inexpensive, reliable, low temperature, 58 W ballast for two 32 W T8 lamps

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reporting any short lamp life of the T8 when used with instant start electronic ballasts. The occupancy sensor people say that three burning hours per start is consistent with their logging data. The penalty of losing 7 percent in efficacy is too high a price to pay for a lamp that can be switched on and off every 5

Wallace Lippincott, Ed Rubin, Dick Dunlop, and Eugene Towner. I am thinking this may be my five minutes in the spotlight so I am going to take advantage of it. These names will mean nothing to most of you and will only mean something to a few people in the Baltimore, MD area, but these gentlemen are the reason I am writing this column as the RVP of the East Central Region of the IESNA. These men were two engineers and two manufacturers' representatives, a good balance and a good foundation to build my IESNA and led me into my own lighting career.

Well, now that I have thought about my past, I think it's time for every IESNA member, past Section Presidents, past RVPs, past Board of Directors and past Committee Members, to start getting ready for the IESNA 100 year Anniversary which will occur in 2006. Right after you sit down and write out your

When researching  
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members.

check and send it to the Centennial Club, I challenge each of you to write down all your past section presidents you can think of.

If you are presently a section president or program chair, set up a past president program for this upcoming program year. I can still remember the one the Maryland Section had when I first started through the offices. I believe I was treasurer that year. Anyway, I remember being at a lunch meeting with 12—15 past section presidents and seeing the pride in their faces as we introduced each one to the others. For Section Presidents or Board of Managers, you can set up a history committee and get some new members involved.

When you start your list and you have trouble finding everyone or just can't think of a name for certain years, try placing a poster with the list of names and dates you can think of at the door at your upcoming monthly meeting and ask all attendees to verify the information and please fill in the blanks. That gets all your members thinking about the history of your section. I am sure some people would be surprised to find out who was active in their section in the past. Make it fun, give out prizes for the information going back the farthest.

When researching your local section's history, you may find out some interesting people were, and maybe still are, members. I remember finding out that the person responsible for the Munsell Color System, you know that color chart that was in the back of the *Lighting*

*Handbook* for so many years, had his company, The Munsell Color Company, Inc., right here in Baltimore.

Now, for the present Regional Vice Presidents, you

## REGIONAL VOICES

can gather the information and have fun seeing which of your sections can go back the farthest in your region's history. Maybe you can start getting together the names of past RVPs of your region.

History is a great thing to have and to know. You have all heard that history repeats its self, well it's true. My first term as Maryland Section President was 22 years ago and my second just two years ago. My second term was better than my first, at least from what I can remember. I would like to thank those who got me to become section president for the second time, because if I hadn't, I probably would not have had the opportunity to become RVP and had the opportunity to give back to the Society. My greatest pleasure as RVP is to help the sections in my region have successful meetings and educational programs.



Jim Graff,  
East Central  
Region RVP



Artist's rendering of the mural that will be on the back wall of the Children's theater. Once finished, fiber optics will be added to bring the wall to life. The complex is currently under construction.

## ADVENTURES IN LIGHTING



Brett Kingstone

Today we revisit one of my favorite subjects: How the lighting industry has banded together to donate their time, talent, and products for a worthy cause: Give Kids the World. Give Kids the World is a village built by philanthropist and holocaust survivor, Henri Landwirth, to provide terminally ill children worldwide with the answer to what is often their last wish, to spend a week at DisneyWorld with their families.

In my last article on the subject (August 1999 LD+A), we discussed how Chip Israel of Lighting Design Alliance in California and several other vendors including Super Vision donated their talent and products to create the fiber optic Children's Treehouse, Pavers and Pathway Lights for the village.

In this column we will explore the contributions of another two talented lighting designers and architects: Paul Gregory of Focus

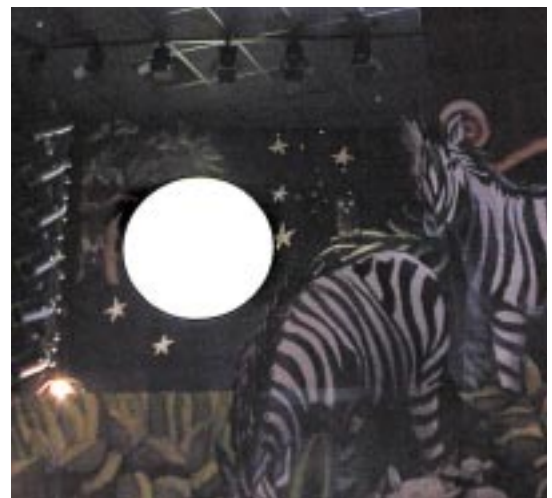
Lighting and David Rockwell of the Rockwell Group, both in New York. In addition to providing the time and talent, their passion for the project influenced many manufacturers in the lighting industry to provide their specified products to the construction site free of charge. These vendors included Altman Stage Lighting, ETC, Lightolier, Litelab, Lumiere, Ruud, and Super Vision. It was inspiring to see how the entire industry voluntarily banded together to provide so much for a group of children and their families who had so little left to hope for.

Paul Gregory is known for his spectacular lighting design projects worldwide. Even though he is the recipient of countless awards for excellence in his field, according to Gregory "nothing gave me the feeling of satisfaction than seeing how much the children appreciated the results of our work at Give Kids the World. You just can't put a price on their smiles."

Paul conceived and developed the lighting designs for the Children's theater. But he did not stop there. Paul got on the phone and worked his vendor list and without exception every single

vendor agreed to provide the products free of charge. Hiroshi Kira, President and CEO of Lumiere, now a division of Cooper Lighting, commented to me: "We truly believe that the corporation is part of society and has a responsibility to contribute for the betterment of society as a whole. This way we can make a better world. Lumiere is proud that it could play a role in making the children's world a little brighter." Most of the vendors I spoke with said it was their passion for the cause, as well as Paul's well known power of persuasion, that got them to sign up for the project. Troy Siebels of Focus lighting summed up the end result: "What is fascinating or magical about this project is that we were able to work with the best architects, designers, and vendors to design a high quality project without having to make any compromises due to price. We achieved this because everyone contributed."

Rockwell Group staff donated the architectural design and drawings for the new movie theatre, which included an illuminated mural with a nighttime scene of animals in the jungle. Lion and



(left) The exterior of the Children's theater and, (right) work is underway inside to create the mural in the back.

tiger eyes were lit up with fiber optics and the stars in the sky above twinkled using standard 75 W halogen illuminators and combinations of optical fibers of varying diameters to provide a three-dimensional effect. The movie theatre was unique because the design called for making the space as entertaining as the venue. Even

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before the film was to be shown, a wonderful mural and magical lighting effects entertained children.

The Rockwell Group is renowned for their themed entertainment design expertise that includes the interior/exterior design and the fiber optically lit murals in all the Planet Hollywood locations worldwide.

Two more people I should mention in the article who were prime movers in the construction and development of Give Kids the World from the inception to the present are Greg Gibson of Greg Gibson Entertainment & Design



**In theory and in practice: (top) fiber optics outline an illuminated footprint design in the floor and (bottom) a youngster investigates.**

Associates in Orlando and Frank Eller of the Orlando office of Centex Rooney Construction Company. Along with Henri Landwirth, they were the two individuals who played a major role in influencing Super Vision to sign on for dozens of additional expansion projects. Greg, who before starting his own firm was previously an executive with Itec, an Orlando-based themed entertainment design firm, served as the original designer on the project more than eight years ago when the project was just a relatively modest group of buildings on Henri's large plot of land.

Greg and Frank, along with Henri, was the original inspiration for many companies to make their

initial product donations. For many of us this seemed like a very big commitment given the size of our companies but it was amazing how all the small firms who contributed saw their companies grow dramatically over the years and were able to make even larger commitments as expansion plans continued.

Perhaps the most dramatic

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event that happened to me on the construction site is when I met Frank Eller during our first day on the job several years ago. Centex Rooney was the acting general contractor who donated the time of one of its best construction site managers (one hell of a commitment if you know anything about the growth of the Orlando construction market) to the project. We had previously worked on several commercial projects with Frank and knew him to be a driven, tough, and extremely capable site manager. Centex Rooney is known

for its more than one billion dollars in construction projects including several jobs for the major theme parks and attractions as well as the state and local governments. When there were initial scheduling problems with all the subcontractors and suppliers, Frank just walked on the site, looked us all in the eye, and told us "I have been sent here by God Himself to watch over this site, there will be no problems or delays and we will all cooperate to see that His will is carried out!" The surrounding masons, electricians, concrete workers, and rebar installers all froze in silence, you could not only hear a pin drop on that site for about ten minutes but you could see the tears well up in the eyes of the surrounding contractors and workers. All of a sudden it hit us why we were all there, there was never another argument on that site again. (For those of you who work with the construction industry on a daily basis: Can you imagine a job site where everyone cooperates without question and works for free? A true miracle!)

The spirit of Frank Eller is legendary. A deeply religious man, Frank decided that this project was his calling in life. He started putting in 18 hour days, seven days a week. I would often get calls from his cell phone on the weekend, sometimes at night; he was still on the job. As legend has it, the first day that Frank reported for work at Give Kids the World, he walked on the construction site and told Henri Landwirth: "Hi, my name is Frank Eller and I have been sent here by God." With that devotion and commitment Frank soon convinced Centex Rooney to contribute his services permanently and over the past eight years Frank has built a world class children's resort from Henri's dreams and vision and initial plot of land. Thousands of "special" children and their families have enjoyed Give Kids the World over the years. Miracles do happen, we are proud that the lighting industry has played a big part in this one.



# ILLUMINATING ENGINEERING SOCIETY NEWS

VOLUME 30, NUMBER 5  
MAY2000

## IESNA 2000 Annual Conference Set for Washington, D.C.

The IESNA's Annual Conference is set for July 30–August 2. This three-day conference serves as the most comprehensive educational forum for the lighting industry. Author-presented paper ses-



sions will focus on the latest research in design theory, measurements and controls, photometry, daylighting, energy, ballasts, and fiber optics. Educational seminars will cover a wide range of topics including environmental issues, exterior lighting design, reflectors, NCQLP and the LC update, energy and government issues, outdoor lighting, design, architectural trends, and the future of lamp technologies. Two 3-hour workshops (IESNA CEU accredited) entitled "Museum Lighting" and "Effective Presentation Techniques" will be conducted on Sunday July 30th.

The conference opens Monday with the annual meeting of the Society presided by incoming IESNA President, Martyn Timmings, Canlyte Inc. A special keynote address on mergers and acquisitions by Larry K. Powers, President and CEO, GT - Genlyte Thomas, is slated. On Monday, the IESNA will also present its prestigious awards (Medal, Marks, Distinguished Service, and Fellow) at a special luncheon honoring outstanding individuals who have furthered the art and science of lighting or advanced the Society's goals and mission.

On Tuesday, the Society's IIDA (International Illumination Design Awards) luncheon will be held. Lighting designers will be recognized at a gala luncheon featuring their outstanding and original lighting design projects from this year's program.

On Wednesday, new products and services will be showcased in a unique Progress Report presentation followed by a tabletop exhibit featuring products from leading manufactur-

## IESNA Calendar of Events

### July 30-Aug 2, 2000

2000 IESNA Annual Conference  
Washington, DC  
Contact: Valerie Landers  
(212) 248-5000, ext. 117

### September 10-13, 2000

IESNA Street and Area Lighting Conference  
Minneapolis, MN  
Contact: Valerie Landers  
(212) 248-5000, ext. 117

### September 22-23, 2000

IESNA Maritime Regional Conference  
Moncton, New Brunswick  
Contact: Art Gillard  
(506) 858-0950

ers in the lighting industry.

Join us in Washington as members of the Capital Section and the East Central Region welcome you.

Full Conference Fee: \$525 Member/\$575 Nonmember (meals included); Full Technical Fee: \$420 Member/\$440 Nonmember; Daily Fee: \$160 Member/\$180 Nonmember; Retired IESNA Members and IESNA Student Members; Full Technical Fee: \$50.

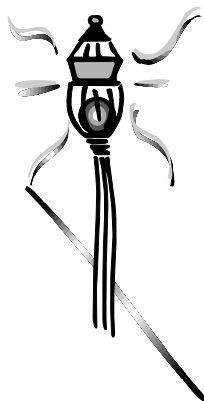
Contact: Valerie Landers, IESNA Manager, Member Services; phone: 212-248-5000 ext. 117; email: [vlanders@iesna.org](mailto:vlanders@iesna.org).

## Street and Area Lighting Committee Formed

The IESNA announces the establishment of the IESNA Street and Area Lighting Committee as a full committee of the Society.

The committee was formally called the Street and Area Lighting Partnership and functioned as part of The Electrification Council (TEC). The committee's mission is to meet market challenges and customer expectations by promoting excellence in street and area lighting. Its goals are to provide a forum to exchange information on current lighting issues and to identify and disseminate marketing strategies, new technologies, and operational practices.

To serve these goals, the IESNA will sponsor



the Street and Area Lighting Conference. In its 19th year, this conference serves to bring together lighting specialists, program planners, and marketing and utility customer service representatives with responsibility for outdoor lighting. Included are investor owned, municipal and public utility personnel as well as manufacturer's representatives.

The conference will be held in Minneapolis, Minnesota at the Minneapolis Marriott City Center Hotel, September 10–13, 2000. This conference is the only lighting forum that specifically serves the outdoor lighting market. The

*continued on following page*

## Street and Area

*continued from previous page*

conference program will showcase the latest in lighting products and services through educational sessions and open forums on outdoor lighting applications. Product design, marketing strategies, customer service, and sales and training are just a few of the hot topics being covered. Two lighting courses (basic and advanced) will be conducted on Sunday, September 10th. Over 40 of the most active trade allies will exhibit the latest in outdoor lighting products and services during the three-day conference program.

In this ever-changing marketplace, this is your chance to join your colleagues in meeting the new demands and exploring new opportunities in outdoor lighting.

Full Conference Fee: \$495 Member/\$625 Nonmember; Daily Fee: \$250 Member/\$300 Nonmember.

Contact: Valerie Landers, IESNA Manager, Member Services; phone: 212-248-5000 Ext. 117; email: [vlanders@iesna.org](mailto:vlanders@iesna.org)

## DOE Implements New Fluorescent Ballast Regulations

The Department of Energy (DOE) will be implementing new regulations regarding the manufacture and sale of fluorescent lamp ballasts in order to create significant energy savings and emission reductions.

Lighting accounts for 20-25 percent of all electricity consumed in the U.S. Americans spend about one quarter of their electricity budget on lighting, or more than \$37 billion annually. Adoption of these lighting efficiency standards is expected to save enough energy by 2030 to power between 12-26 million homes in the U.S. It will also result in a reduction of greenhouse gases equivalent to removing 58 million cars from the roads.

The new ballast efficiency standards were hammered out in two days of negotiations between energy advocacy groups and lighting component manu-

*continued on following page*

## SUSTAINING MEMBERS

The following companies have elected to support the Society as Sustaining Members which allows the IESNA to fund programs that benefit all segments of the membership and pursue new endeavors, including education projects, lighting research, and recommended practices.

The level of support is classified by the amount of annual dues, based on a company's annual lighting revenues:

### Copper: \$500 annual dues

Lighting revenues to \$4 million

(Copper Sustaining Members are listed in the March issue of *LD+A*, as well as in the IESNA Annual Report.

There are currently, 230 Copper Sustaining Members).

### Silver: \$1,000 annual dues

Lighting revenues to \$10 million

### Gold: \$2,500 annual dues

Lighting revenues to \$50 million

### Platinum: \$5,000 annual dues

Lighting revenues to \$200 million

### Emerald: \$10,000 annual dues

Lighting revenues to \$500 million

### Diamond: \$15,000 annual dues

Lighting revenues over \$500 million

## DIAMOND

Cooper Lighting  
GE Lighting  
Lithonia Lighting  
OSRAM SYLVANIA Inc.  
Philips Lighting Co.

## EMERALD

Holophane Corporation

## PLATINUM

Day-Brite/Capri/Omega  
Lightolier  
Lutron Electronics Co., Inc.

## GOLD

A.L.P. Lighting Components Co., Inc.  
Barth Electric Co., Inc.  
The Bodine Company  
Detroit Edison  
Edison Price Lighting  
Finelite Inc.  
Indy Lighting, Inc.  
The Kirlin Company  
Kurt Versen Co.  
LexaLite International Corp.  
Lighting Services Inc.  
Lightron of Cornwall, Inc.  
LSI Industries Inc.  
Martin Professional Inc.  
Matsushita Electric Works Ltd.  
Musco Corporation

Philips Mexicana SA de CV  
Prudential Lighting Corp.  
Robertson Worldwide  
Ruud Lighting Inc.  
San Diego Gas & Electric

SIMKAR  
SPI Lighting Inc.  
Steelcase, Inc.  
Visa Lighting

## SILVER

American Illuminetics Inc.  
Ardron-Mackie Limited  
Associated Lighting Representatives, Inc.  
Bartco Lighting, Inc.  
Branco Lighting and Controls  
BJB Electric Corporation  
Canlyte, Inc.  
Cinergy PSI Energy  
City of San Francisco  
Bureau of Light & Power  
Con-Tech Lighting  
Custom Lighting Services, LLC  
Custom Lights, Inc.  
Day Lite Maintenance Co.  
Elf Atochem North America Inc.  
Energy Savings Inc.  
ENMAX

Enterprise Lighting Sales Corp.  
ERCO Leuchten GmbH  
Exelon Infrastructure Services  
Eye Lighting Industries  
Eye Lighting International of

North America

Factory Sales Agency

Fiberstars, Inc.

Focal Point LLC

High End Systems Inc.

Hubbell Lighting Inc.

Kansas City Power & Light Co.

Kenall Manufacturing Co.

King Luminaire Co.

Kirby Risk Supply Company, Inc.

Ledalite Architectural Products

LEE Filters

Legion Lighting Co.

Leviton/Macro Lighting

Control Division

Lite Tech

Litecontrol Corp.

Litelab Corporation

Litetronics Int'l Inc.

Multi Electric Manufacturing Inc.

National Institute of Standards

Northern Illumination Co., Inc.

Optical Research Associates

Optima Engineering PA

Paramount Industries, Inc.

Portland General Electric

Poulsen Lighting Inc.

Power Lighting Products Inc.

Prescolite•Moldcast

Shakespeare

Composites + Electronics Division

Shaper Lighting

Shobha Light Designers

Southern California Edison

Stage Front Presentation Systems Inc.

Sterner Lighting Systems, Inc.

TU Electric

United Illuminating Co.

WAC Lighting Co.

Wiko Ltd.

H.A. Williams & Assoc.

H.E. Williams Inc.

Winnepeg Hydro

Wisconsin Public Service Corp.

Zumtobel Staff Lighting Inc.



As of April 2000

## DOE Implements New Fluorescent Ballast Regulations

*continued from previous page*

facturers, including MagneTek, Philips, OSRAM, SYLVANIA, Lithonia Lighting, and Advance Transformer. This allows the industry to develop a reasonable timetable to make the transition without closing factories or writing off millions of dollars of investment.

Effective April 1, 2005, ballast manufacturers can no longer produce ballasts for installation into new lighting fixtures unless they meet the new minimum ballast efficacy requirements (BEF) set forth in the proposed rule. With existing technology, only electronic ballasts comply with these guidelines for the popular F40T12 and F96T12 lamps. Energy efficient magnetic ballasts for F96T12HO lamps now rated for -20° F will be required

for all applications except outdoor signs. Exceptions will be ballasts with factors less than 0.90 which are designed and labeled for use in residential buildings' applications and ballasts that dim 50 percent or less of their maximum output. In addition, the exemption for 0°F starting is removed.

The manufacture of ballasts not meeting the new BEF values, but still meeting the old BEF values, is allowed for replacement use only until June 30, 2010. These products must be manufactured with short leads, packaged in quantities of ten or less, and marked "FOR REPLACEMENT USE ONLY."

Other significant dates include: June 1, 2005 when ballast manufacturers can no longer sell ballasts that do not

meet the new BEF requirements; April 1, 2006 when lighting fixture manufacturers can no longer incorporate ballasts that do not meet the new BEF requirements in new fixtures; and July 1, 2010 when ballasts, including replacements, can no longer be manufactured unless they meet the new BEF guidelines.

The lighting industry has already been moving toward electronic ballasts that meet the new guidelines. Developments in electronic ballast technology have widened the performance gap and narrowed the price gap in relation to magnetic ballasts. For more information about these new regulations contact Greg Bennorth of MagneTek at 1-800-BALLAST, ext. 362.

## Light Right Consortium Embarks on New Phase

When the Light Right Consortium was formed in 1998, its mission was to promote the ancillary benefits of quality energy-efficient lighting and encourage its implementation.

Based on the success of its first year of work, the Light Right Consortium will be launching Phase Two of the project and will be performing both research and market-oriented work. The ultimate goal of Light Right is to use the benefits of high quality lighting to transform the marketplace.

The link between the quality of lighting and the performance, health, satisfaction, and productivity of workers has long been the subject of conjecture and numerous studies. One might ask, what things make this project different? For the first time this challenging question is being addressed in a truly collaborative way, with a thoughtfully integrated program.

The Consortium is a diverse group utilizing the broad talents of many members of the lighting, buildings, energy services, and corporate realty industries, as well as representatives from professional associations, federal agencies, states, and utilities.

The research will be accomplished not by one single institution, but by

numerous groups who will be competitively selected and will work in collaboration with each other. Battelle Memorial Institute, Pacific Northwest Division (Battelle) manages and coordinates the projects and other work conducted under the auspices of Light Right.

Perhaps the most notable element is the integration between the research and the marketplace. Rather than presuming to know what would be most powerful in transforming the

market, the project retained the services of a reputable independent market research firm to survey lighting equipment consumers. Market research was performed to understand in detail the current priorities, concerns, and decision processes of major corporations and end users. The market research tested a key concept, along the lines of "If you build it, they will come."

Many in the lighting industry held  
*continued on following page*

## LD+A Writer Honored



Debi Moen, frequent LD+A contributor, was honored with two writing awards from the Austin (Texas) Chapter of Society of Technical Communications in the 1999—2000 Technical Publications Competition. Both awards were for articles she wrote for LD+A. She received an Award of Excellence for her article "Rimes & Reason" about the lighting on the LeAnn Rimes/Bryan White tour that appeared in the September 1998 LD+A. She also received an Award of Merit for "Class Act" about

the creative lighting produced by the students of the Liverpool Institute of Performing Arts in the July 1999 LD+A.

Moen has industry relations representative for High End Systems since 1995. Prior to that she was senior editor and writer for *Performance* magazine, an international concert touring trade publication. She has been a regular contributor to LD+A since 1996, writing on a variety of topics covering concert tours, theatrical productions, lighting trends, and awards shows. Her most recent article was "Up Staged" about R.E.M.'s concert tour in the October 1999 LD+A.

Congratulations to Debi from the entire LD+A staff for a job (or jobs) well done!

## Light Right Consortium Embarks on New Phase

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the hope that if you prove a link between productivity and lighting quality, it will influence buying decisions. This concept had never been tested until now. Light Right found that without a doubt, "If you prove it, they will buy." The research results showed that a full 75 percent of the respondents reported that factual evidence of lighting providing a positive effect on worker productivity would influence their decision about which lighting systems to buy.

Another critical piece of news is that occupant satisfaction was rated extremely high by the respondent set. In the past, occupant satisfaction was considered a "soft" measure and not particularly helpful. Now we know to take it much more seriously because it is such a major concern of decision makers.

Just as important as understanding the market is the quality of the

research that will be completed in Phase Two. To begin planning this work, numerous well-known researchers gathered together with manufacturers and designers to determine if it is scientifically possible to measure the impact of lighting quality on people and organizations.

The group concluded that it can be done, and they selected a research approach called "Linked Mechanism Design" to guide the work of Phase Two. Using this methodology it is possible to utilize work that has been done in the past in combination with new results. In addition to laboratory studies, the work will include much needed field experiments and demographic studies. Research will extend beyond visual performance to address neglected issues of aesthetics and psychological processes to capture the full importance of lighting.

Scientific tools from disciplines such

as psychology, human factors, ergonomics, and econometrics will be used. Using a multi-disciplinary approach, new ways of thinking can be applied to the complex challenge of studying quality lighting.

As Light Right moves into Phase Two, the focus will be on finding research results that matter, with near term milestones and immediate delivery to the marketplace. Based on the market research, perhaps a complete understanding of everything about lighting quality and productivity is not necessary. Rather, what is needed are a few pieces of influential evidence to support a commercially viable value proposition. And that will make all the difference.

*New Consortium members are welcome. Please contact Carol Jones, Market Transformation Team Lead, at Battelle, (617) 577-7254, ext. 34, or at Carol.Jones@pnl.gov.*

## New Players Join IESNA

The IESNA staff has been changing with the times. Over the last few months, the following people have been added to the IESNA office team.



Annabel Davis joined the IESNA Marketing Department in September as the Coordinator of Internet Services. Her previous experience includes a position as Account Manager at

an Internet start-up called Cidex International. Most recently she was the New Media Manager for *PR Central*, the website of Editorial Media and Marketing International.

Annabel hopes to continue to enhance the information and services the IESNA provides its members online, as well as to ensure that the IESNA website continues to evolve into a vital resource for its members and the lighting industry as a whole. Members are encouraged to contact Annabel at (212) 248-5000, ext. 121 or at [adavis@iesna.org](mailto:adavis@iesna.org).

"I am confident that Annabel will make an outstanding contribution to this organization," said IESNA Marketing Manager Pamela Weess. "She has already shown a remarkable ability to implement new programs and improve existing applications that will be of great benefit to the IESNA membership." Annabel replaces former Coordinator of Internet Services, Richard Aaron Wright, who took an Internet position with the Commercial Bank of New York.



The Membership Department gained a new employee in January with the addition of Cindy Fernandez as an administrative assistant for Member Services.

Cindy comes to the IESNA from the New York City Department of Transportation's Learning Center where she worked as a Computer Training Assistant. She also worked with Gruner + Jahr USA Publishing as a Circulation Assistant.

In her capacity with the IESNA, Cindy will be very involved in the

daily maintenance of membership records, processing membership applications and payments, reception duties, and communication with Section leadership.

Readers of *LD+A* have seen some changes to the magazine's masthead as two new employees joined the publication's staff.

Peter Aaron Weisman is the new Associate Editor and Samuel Fontanez is the new Associate Art Director for *LD+A* and the *Journal of the IESNA*. In addition, Fontanez will be working on IESNA technical publications, as well as material generated by the Marketing and Membership Departments.



Weisman is a December 1999 graduate of Lehigh University where he worked as a columnist and layout designer for the school's newspaper, *The Brown and White*.

He was also charged with conceiving and editing *Amaranth*, a Lehigh-sponsored literary magazine.

"Peter's intelligence and his will-  
*continued on following page*

## New Players Join IESNA

*continued from previous page*

ingness to learn will make him a valuable member of the IESNA's Editorial Department," said *LD+A* Editor Mark A. Newman. "He has the right attitude and the drive to excel that should contribute to maintaining *LD+A*'s high standards."

In his capacity as Associate Editor, Weisman will be heavily involved in editing and proofreading *LD+A* and *JIES*, as well as writing IES News, Photons, Light Products, Scheduled Events, and various other departments. Newman encourages all members to contact Weisman with relevant information for any of these departments or to discuss potential feature articles.



Fontanez comes to the IESNA Editorial Department from a very diverse background including shipping CDs for international music company, Putumayo, and working as a magician's assistant. He retired from the world of illusion because, as he put it, "Being sawed in half numerous times can put a strain on your soul."

After attending Hunter College, Fontanez worked for several years with All Media Design in New York where he designed brochures, flyers, signs, and other promotional materials.

"Sam's grasp of the design demands of both *LD+A* and *JIES* has been very quick," Newman said. "I look forward to a very rewarding experience for both Sam and the IESNA."

As Associate Art Director, Fontanez is in charge of the complete design and layout of *JIES* and for the design, concept, and layout of all of the various departments within each issue of *LD+A*. Coupled with his conceptual and design duties with all IESNA departments, Fontanez will never have a dull moment.

Weisman replaces former Associate Editor Sarah Neunsinger who immigrated to the Midwest and is now working for Bill Communications in Minneapolis. Fontanez replaces Angel Roque who left for Miller Freeman in New York.

## Cooper Lighting in Fast Lane

Building the brand, showcasing the product, establishing relationships and solidifying new ones. These are the reasons why companies sponsor teams in the NASCAR Winston Cup Series. It is also why lighting fixture manufacturer Cooper Lighting, has teamed up with Square D to become a major associate sponsor on the No. 55 Chevrolet of Andy Petree Racing beginning with the 2000 Winston Cup season.



Since 1995, Square D has been a NASCAR sponsor with driver Kenny Wallace as their point man. The 96-year old maker of electrical equipment and components first became a sponsor in the NASCAR Busch Series, Grand National Division with FILMAR Racing. When Filmar and Wallace made the jump into the Winston Cup waters full-time in 1996, so did Square D. After three years with FILMAR, Square D and Wallace joined the multi-car team of Andy Petree Racing for the 1999 season.

The agreement between Square D and Cooper Lighting is a two-year deal, with Cooper Lighting's logos being implemented into the design of the car (quarter-panels, and upper TV panel only), uniforms, and equipment of the No. 55 team. Cooper Lighting will also be participating in an extensive hospitality program, allowing customers to enjoy the full NASCAR experience at all 34 races.

## Members in the News

**John Maloney**, president of **JMPE Electrical Engineering and Lighting Design** was honored as Santa Barbara/Ventura County's "Engineer of the Year" during the National Engineers Week celebration held at



the Reagan Library on February 23, 2000. Maloney was recognized by engineering peers for his outstanding contribution of "Service to the Profession."

**Hermitage Electric** has added new Project Design Manager, Carla Taylor. Taylor will be primarily responsible for the technical aspects of kitchen design, including drafting, order placement and follow-up after installation to ensure client satisfaction. Taylor is a certified kitchen

designer who has worked in kitchen design for more than nine years.

**Electronic Theatre Controls, Inc.** has promoted Tim Guion to the role of Associated Regional Manager for the company's western-U.S. region. Guion has a BFA in Lighting Design from the University of Southern California, Los Angeles, with extensive theatrical production experience.

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## Correction

In the April 2000 *LD+A*, published along with news of the acquisition of LITETRONICS International, Inc., the title of Michael Schaechter was incorrect. Michael Schaechter is the President of LITETRONICS and not COO.

## Members in the News

*continued from previous page*

**Vincent Lighting Systems** added Dale Linville to the Cleveland staff as the Film and Video Rental Manager, a newly created position. In this role, he will oversee the company's new Film and Video Rental Line.

**Hellmuth, Obata + Kassabaum, Inc.** has named Bill Odell the new firm-wide sustainable design director. Odell is a group vice president and design principal in the firm's St. Louis office. According to Odell, HOK's goal is to make sustainable design a mainstream practice for the entire design and construction industry. Since 1993, Odell has been the St. Louis representative for HOK's sustainable design team, responsible for directing the firm's growth in sustainability through research.

The Spacer System Infrared Preset Lighting Control, a lighting control from **Lutron Electronics Co., Inc.**, received a CES Innovations Award at the 2000 Consumer Electronics Show in Las Vegas. The Innovations Award Program is open only to exhibitors at 2000 International. It is endorsed by the Industrial Designers Society of America and sponsored and produced by the Consumer Electronics Manufacturers Association, a sector of the Electronic Industries Association.

Colfax Corporation announced the acquisition of the former **Warner Electric Inc.**'s Motors and Controls Division from Dana Corporation. As part of the new venture, Colfax Corporation has established the Colfax Automation Group that consolidates the **Superior Electric**, Fincor Electronics, and Warner Engineered Systems products and brands under a new, single entity to be headquartered in Bristol, Connecticut.

High-Lites, a subsidiary of the **JJI Lighting Group, Inc.**, announced a new site on the world wide web at [www.highliteslighting.com](http://www.highliteslighting.com).

**BEGA/US** has moved into its new Corporate Center, located at 1000 BEGA Way, Carpinteria, California, 10 miles south of Santa Barbara. Included in the complex are outdoor

dining areas, a reflection pond (lit at night) with waterfall, an employee fitness center, and a 2000 ft<sup>2</sup> working showroom/presentation area. The entire 9 acres of landscaped grounds as well as the building's exterior spaces, roadway, parking areas, gardens, and floodlit walls provide exceptional demonstrations of most BEGA product groups.

d'ac Lighting has announced the appointment of a new sales representative for the southeast regions.

**Adams Parnell Agency** will represent d'ac products through Richmond, Virginia, headed by Carter Adams and Steve Parnell.

Valmont Industries, Inc., a leading manufacturer of steel, aluminum, and composite poles and structures for lighting and utility industries has acquired the assets of **Lexington Stan-**

**dard Corporation**, of Farmington, MN. Lexington Standard is one of the nation's foremost manufacturers of aluminum poles for the lighting industry. For more information, visit the Lexington Standard web site at [www.lightpoles.com](http://www.lightpoles.com) or the Valmont website at [www.valmont.com](http://www.valmont.com).

**Moody Ravitz Hollingsworth Lighting Design, Inc.** is pleased to announce its official web site at [www.mrhldi.com](http://www.mrhldi.com). In addition to company profile and information, the site includes technical lighting articles and a gallery of lighting history. Please direct all suggestions and comments to Francis Mepin, webmaster at [francism@mrhldi.com](mailto:francism@mrhldi.com). MRH Lighting Design, Inc. is a diversified lighting design firm serving entertainment and architectural markets with offices in Van Nuys, California.

## Allied Organizations

*ASTM Standardization News* magazine, a publication covering standards development, is now online at [www.astm.org](http://www.astm.org). *Standardization News* is the official publication of ASTM, one of the largest voluntary standards development systems in the world. In addition to featuring **ASTM** technical committee standards development activities, the magazine publishes news about national and global standards activities. Sections featured in the new online version include: feature articles, commentary, Global Notebook (short news items from around the nation and the world pertaining to standardization), Tech News, and people; entertaining monthly profiles of ASTM members and their hobbies and interests.

**Underwriters' Laboratories Inc. (UL)** announced the publication of the eighth edition of the *Standard for Safety Lampholders, Starters, and Starter Holders for Fluorescent Lamps*, UL 542. UL 542 requirements cover starters, starter holders, and lamp holders intended for use with fluorescent lamps in accordance with the National Electrical Code. Starters for use with simple reactance-type fluorescent-lamp ballasts are intended for use in circuits involving a potential of 125 V maximum. Manual starters incorporating a line switch are rated either 125 or 250 V. Starter holders are for use in circuits involving a maximum of 250 V. Lamp holders are intended for use with fluorescent lamps involving a potential of 2500 V or less during either starting or operating conditions. UL 542 requirements also cover lamp holders intended for use with low-pressure sodium lamps. For more info: tel: 1-800-854-7179; fax: (303) 397-2740; web: <http://global.uls.com>; email: [global@uls.com](mailto:global@uls.com)

As the **NCQLP** certification program grows with an increased number of qualified LC practitioners each year, the organization itself is also expanding. Three new organizations joined the NCQLP in 1999 – **National Association of Independent Light Distributors (NAILD)**, **New York State Energy Research & Development Authority (NYSERDA)**, and **The Electrification Council – Interior Lighting Partnership (TEC)**. Along with these three, the Council is currently composed of 17 members that represent organizations, associations, and federal agencies in lighting and related industries: ASID, CEC, APRI, IESNA, IALD, IFMA, IIDA, LRC, NEMA, NLB, The Nuckrolls Fund for Lighting Education, DOE-FEMP, EPA, and the GSA.

## 2000 IIDA Entries

The following design projects were submitted to the IIDA program through respective sections of the IESNA and reported to the IESNA offices in New York City. These projects will be moving through the IIDA judging process during the coming months. Good luck

### CANADIAN REGION

(Deborah Gottesman)  
*National Capital Section*  
 (G. St. Michael)  
 Alternative Officing at Les Terraces  
 Public Works and Government Services Canada: L. Lalande, M. Contal  
 New Officing Strategies Pilot  
 Project Public Works and Government Services Canada: L. Lalande, M. Contal, I. Pasini  
 Notre Dame Cathedral: M. Conboy  
 St. Bruno Mall: P. Gabriel, R. Nicholson

*Toronto Section* (Jana Nor)  
 Hilton Hotel Toronto Airport:  
 S. Powadiuk  
 Famous Players Paramount at Festival Hall: Interior Public Spaces: R. Forbes Gray, S. Dolgoy, B. Stamp  
 Seneca At York – Multi Purpose Room: B. Hirons, S. Thistle  
 The Open Cork: M. Hirschberg, R. Graham  
 Alias/Wavefront Studio/Offices:  
 S. Powadiuk  
 Canadian Bar & Grill (Holiday Inn):  
 M. Hirschberg  
 Toronto Residence: B. Mortazavi  
 Playdium @ Festival Hall: J. Scott  
 Seneca At York – Computer Commons: B. Hirons, S. Thistle  
 L'Arche Daybreak Chapel:  
 S. Powadiuk

### EAST CENTRAL REGION:

(Dave Safford)  
*Maryland Section* (Brian Walsh)  
 John Hopkins – MICU: D. Nelson, T. Bennett, M. Siegmeister, C. Andrews  
  
*Philadelphia Section* (Dave Safford)  
 SAP American, Inc.: G. Power, D. Berrian Viola  
 Philadelphia College of Osteopathic Medicine: L. Waldron, P. Trombert  
 Presbyterian Hospital, Diagnostic, Ophthalmic Photography & Anigography: K. Beacher  
 Max Rosenn Federal Courthouse:  
 G. Power, D. Rodstein  
 Pratt Institute: D. Rodstein  
 Centerplex Building "C": D. Rodstein  
 Soper Commons, Hamilton College: G. Golaszewski, P. Mattis, V. Bastian, R. Davis  
 Gimbel Gymnasium, University of Pennsylvania: G. Golaszewski, P. Mattis

to everyone! The IESNA would like to thank all the volunteers who make the IIDA program work. Listed in parenthesis are the Regional IIDA Chairs and Section Chairs, respectively.

Thanks also to the 2000 IIDA Committee, who oversee the program and whose members are: Donald Newquist, Chair; Zoe Taylor Paul,

Secretary; Lawrence Ayers, Robert Carlson, Renee Green, John Harpest, David Keith, Howard Kosowsky, Robert McCully, Jerry Mobilio, Mary Tatum, Jerry White, Jim Zastovnik and, as Advisory: Lorinda Walter Flores, William Hirons, Frank LaGiusa, James Newes, and LD+A Editor, Mark A. Newman.

### Susquehanna Section

(James Holder)  
 Sparks Building – Language Learning Center: S. Good  
 Relighting Pennsylvania's Capitol Dome: K. Yancey, L. Cronin  
 Biddles Corner Toll Plaza (BCTP):  
 A. Cheng

### GREAT LAKES REGION

(Jim Fowler)  
*Cleveland Section* (Rita Koltai)  
 Jephtha Homer Wade II Gallery of Gems & Jewels: S. Mangum, T. Zak  
 Cuyahoga County Library Technical Services Relighting: T. Kilbourne

### Michigan Section

(Claudia Gabay)  
 SmithGroup Lobby: R. Manriquez  
 French Associates: K. Rettich  
 EPA: M. Gadzinski, E. Deska  
 The Grand Hotel Jewelry Shop:  
 K. Wood  
 Fossil: R. White, D. Franklin  
 Chevy Auto Show Exhibit-2000:  
 R. White, D. Franklin  
 Perfumania: R. White, D. Franklin  
 Ford Moter Company/YAHO! Dinner at Fairlane Estate:  
 M. Borus, K. Kaltschmidt, K. Klemmer, R. Harwood  
 Universal Islands of Adventure:  
 M. Borus, K. Klemmer, R. Harwood  
 Heron City Las Rozas Hollywood Plaza: K. Klemmer, M. Shulman, D. Vogel, R. Harwood, S. Stephens, C. Herrington  
 The NBC Experience: M. Shulman, D. Vogel, R. Harwood  
 BMW-Office Renovation:  
 D. Rodi-Barczys  
 Mercedes Benz-Integrating Lighting with Industry & Architecture:  
 D. Rodi-Barczys, J. Schuster  
 Assarian Cancer Center – Healing Center: P. Wroblewski  
 Mouse Gear: S. Graf, L. Roper  
 The Power of Houston: S. Graf, T. Eckerman  
 Pat Moran Oldsmobile GM Truck:  
 S. Graf  
 W.B. Doner & Company: S. Graf, B. Killian

### Pittsburgh Section

(Tom Carlins)  
 Pittsburgh Millennium Creche:  
 A. Weiss, W. Lewis

### Western Michigan Section

(Stephern Kam)  
 ISERV Co.: L. Surdock

### INTERMOUNTAIN REGION

(Ann Good)  
*Utah Section* (Martin Martinez)  
 Treehouse Athletic Club:  
 P. Whisenhunt, J. Good  
 Val A. Browning Center:  
 P. Whisenhunt, J. Good  
 Professional Offices for Naylor  
 Wentworth Architects: J. Good  
 Clearfield City Hall: C. Forrest, J. Good  
 Kimball Arts Center: M. Larsen  
 Galland Residence: G. Johnson, M. Larsen  
 Montrone Residence: G. Johnson  
 Gunnell Residence: G. Johnson  
 Holmes Residence: G. Johnson  
 Noyes Building Renovation:  
 C. Feldman  
 Hale Centre Theatre: C. Feldman, M. Bryant  
 North Star Elementary: J. Martinez  
 Utah State Division of Services for the Blind and Visually Impaired Library: A. Matinkhah  
 Harold B. Lee Library: E. Nawabi  
 State Bank of Southern Utah  
 Corporate Office: R. Wamsley, N. Johnson  
 Central Weber SID – Laboratory/Control Building:  
 R. Wamsley, N. Johnson  
 University of Utah Rice – Eccles Stadium: G. Mesker

### MIDWEST REGION

(Kathi Vandel)  
*Blackhawk Section* (Shawn Gallagher)  
 Linc-Studio – Lincoln Office:  
 J. Eman, T. Craig-Troxel, J. Tow  
 Caterpillar Inc. Computer Technology Training Facility: J. Eman  
 One Technology Plaza-High Rise Parking Facility: J. Eman  
 Caterpillar Inc. Computer Technology Training Facility (EPRI): J. Eman

### Heart of America Section

(Mariann Sun/Julie Pierce)  
 Board of Trade Sculpture Lighting Design: J. Marquardt  
 Poindexter Building: B. Yarnell, M. Hershman, L. Leonard  
 Midwest Research Institute:  
 B. Yarnell, M. Hershman  
 Doubletree Hotel: B. Yarnell, M. Hershman  
 Architectural Office: D. Sabatini, C. Lonigro  
 Capital City Bank: D. Sabatini, M. Thome

James C. Kirkpatrick Library:  
 D. Holden  
 Exterior Lighting Improvements – Fort Hays State University:  
 L. Brack, R. Linneman  
 Western Resources Inc. General Office Bldg. First Floor Renovation: W. Maeger

### NORTH CENTRAL REGION

(Peter Hugh)  
*Chicago Section* (Rick Kellen)  
 South Shore Bank: H. Kessler, J. Knox, C. Seville  
 Private Residence: M. Sills, W. Charter, D. Koster  
 3COM Signage: M. Sills, C. Lewis, R. Mattheis  
 Gingerbread Village: W. Charter, S. Riebe  
 The Cathedral of the Immaculate Conception: R. Shook, A. Vodicka, M. Urban  
 Grace Presbyterian Church: M. Sills, W. Charter, J. Keach  
 General Growth Lobby: M. Sills, W. Charter, G. Destefano  
 Shedd Aquarium Caribbean Reef:  
 R. Shook, E. Klingensmith, F. Callahan

### Indiana Section

(Myron Martin)  
 RCI Vacation Plaza: B. Eden, S. Kennelly, R. Longfellow, J. Smith

### Milwaukee Section

(Margaret A. Cooper)  
 Waukesha Civic Theater: M. Hyra  
 St. Joseph's Church Addition and Remodel: R. Hombsch  
 Shrine of Mary: M. White  
 Color, Geometry and a Feather – Light Leads the Design Style:  
 M. Peck  
 Correct Postage: M. Peck  
 Tannery Bottle House: S. Klein, L. Howard  
 Corporate Retreat Atrium: S. Klein  
 YMCA of Metropolitan Milwaukee – Ozaukee Branch: D. Boyce  
 Waukesha County Fleet Maintenance Facility: D. Boyce  
 Foley & Lardner Law Offices:  
 K. Kozminski, L. Engelland  
 UW Health – West Clinic:  
 L. Engelland, K. Kozminski  
 Our Lady of Lourdes, Catholic Church (Interior): I. Ragozin  
 U.S. Courthouse: H. Fitzsimmons  
 Our Lady of Lourdes, Catholic Church (Exterior): I. Ragozin  
 Metro Credit Union: S. Wheaton

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## IIDA Entries

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*Twin Cities Section* (Greg Lecker)

Target Plaza North: T. Ham, S. Becker  
 Conesco Fieldhouse Exterior  
 Lighting: A. Phillips, G. Heumann  
 Jekyll & Hyde Club: M. DiBlasi, S. Schreiber  
 Interdistrict Downtown School:  
 D. Mutcher, J. Cuningham, J. Pfluger, D. Pratte  
 Minnesota Life: K. DeFreese, T. DeAngelo, J. Curiskis

### NORTHEASTERN REGION

(Patricia Di Maggio)

*New England Section*

(Rick Paradis/Brian Grosse)  
 Sterling Law School Renovation:  
 Kallmann McKinnell & Wood Architects, Inc., Berg/Howland Associates Inc., Flack & Kurtz  
 Ewing Marion Kauffman Foundation Headquarters: Kallmann McKinnell & Wood Architects, Inc., Berg/Howland Associates Inc., Cosentini Associates  
 New Chardon Street Courthouse:  
 Kallmann McKinnell & Wood Architects, Inc., Berg/Howland Associates Inc., Cosentini Associates  
 Fenton Judicial Center: Leers Weinzapfel Associates Architects, Inc., Berg/Howland Associates Inc., TMP Consulting Engineers, Inc.  
 Nicholas Athletic Center: Chan Krieger & Associates, & Office of Peter Rose, Berg/Howland Associates Inc., Abbood/Holloran Associates, Inc.  
 Linsly-Chittenden Hall Lecture Room: Goody, Clanoy & Associates, Inc., Berg/Howland Associates Inc., R.G. Vanderwell Engineers, Inc.  
 Suffolk University Law School:  
 P. Zaferiou, J. Pieszak  
 West Garage Parking Facility:  
 R. Osten, E. Rojas, W. Lam  
 Lamont Library Reading Room:  
 W. Barchard, J. Traub, N. Martin  
 The Keene Public Library:  
 C. Stevens, W. Whipple, B. Kelly  
 Shulman Residence: D. Madden  
 Brookstone: J. Feinstein, J. Mansour  
 Fine Arts Center Lobby Enclosure:  
 J. Feinstein, P. Ringenbach, S. Slarsky

*Western New England Section*

(Ron Galati)

Crowell Hall: W. Warfel, S. Schragger  
 The American Century Part II – 1950-1999: S. Schragger  
 Trinity Episcopal Church: W. Warfel  
 The Eck Center, University of Notre Dame: K. Daniel  
 Christ Church Cathedral:  
 W. Rebillard, A. Kevalo  
 280 Trumbull Street Lobby:  
 R. Emma, L. Grabinsky

*New York City Section*

(Carrie Knowton/Shoshanna Segal)

W. W. Grainger Headquarters:  
 S. Margulies, F. Soler, S. Szyal  
 UBS AG Headquarters:  
 S. Margulies, S. Szyal  
 Mars 2112 Restaurant: S. Margulies, F. Soler, M. Zelkowitz  
 Blue Cross Blue Shield Headquarters: S. Margulies, F. Soler  
 U.S. Federal Courthouse:  
 S. Margulies  
 Interworld Technology Ventures:  
 S. Margulies, F. Soler  
 Owens Corning World Headquarters:  
 S. Margulies, S. Szyal  
 Celebration Health: M. Harris, B. Horton  
 Ducati Motorcycle Showroom:  
 B. Horton  
 50 Rockefeller Plaza – Lobby:  
 S. Bernstein  
 Mystic Aquarium and Institute for Exploration: F. Bettridge, D. Rogers  
 Baron Captial, Inc.: S. Bernstein  
 Bayerische Hypo Vereinsbank AG:  
 S. Bernstein, C. Cline  
 Whitaker Center for Science and the Arts: F. Bettridge, M. Hennes  
 Nortel Networks Executive Briefing Center: S. Bernstein, D. Rogers  
 United States Courthouse, Lafayette, Louisiana: F. Bettridge  
 Los Angeles County Courthouse – Airport Branch: K. Douglas, D. Mintz  
 Columbia Graduate School of Business, New Classroom Building: K. Douglas, D. Mintz  
 NYU Student Lounge: C. Starner, G. Merich  
 dna Modeling Agency: C. Starner, G. Merich  
 Carla Massoni Gallery: C. Starner, G. Merich  
 Behler Residence: C. Starner, G. Merich  
 Brown Loft: C. Starner, G. Merich  
 Norton Residence: R. Cooley  
 Corporate Center: E. Monaco, R. Cooley  
 Ralph and Fai, Whitney Applied Technology Center at Onondaga Community College:  
 H. Brandston, C. Lien, R. Dorfman  
 The New Gotham Lobby: G. Gordon  
 Martinez Valero Shoe Store:  
 G. Gordon  
 New York Insurance Corporation:  
 D. Gonzalez, D. Tulchin, M. Merza  
 Charleston Federal Court House:  
 D. Gonzalez, G. Gouls, M. Merza  
 Newark Penn Station: D. Gonzalez, D. Tulchin, M. Merza  
 Great Hall @ City College of New York: D. Gonzalez, G. Gouls, M. Merza, A. Hickox  
 East Meadow Aquatic Centre:  
 D. Gonzalez, D. Tulchin, M. Merza  
 The New York Merchantile Exchange: M. Mehl  
 Water Above Water: A Sublime Floating Landscape: L. Schwendinger, T. Sullivan  
 Janovic Plaza NYC Flagship Store:  
 A. Kale, D. Mackiernan

Xerox Showroom & Regional Office

– NYC: A. Kale, D. Mackiernan  
 Noodle Restaurant: D. Singer  
 KPE: D. Singer  
 Shanghai Lily: D. Singer  
 Brooks/World Com: S. Brady, K. Loren  
 Putnam, Lovell & Thornton:  
 S. Brady, G. Mitchell  
 The Lord Group: S. Brady, K. Loren  
 Chiron Corporation, Life Sciences Center: C. Stone, E. Garcia  
 Carrera  
 Times Square New Year's Eve Ball:  
 P. Marantz, S. Hershman, A. Thompson, J. Fisher, P. Eisenhauer  
 TIPCO Headquarters: C. Stone, E. Garcia  
 Carrera  
 Radio City Music Hall: P. Marantz, S. Hershman  
 Larry Kirkland's Oculus Sculpture:  
 C. Stone, R. Schoenbohm, L. Kirkland  
 The New York Public Library, Rose Main Reading Room: R. Renfro, B. Citrin  
 Resorts: Rockwell Group, Lighting Consultant  
 Resorts Hotel & Casino – Asian Spice Restaurant: P. Gregory, J. Nathan  
 Resorts Hotel & Casino – Casino Area: P. Gregory, J. Nathan  
 Ruby Foos' Restaurant: P. Gregory, B. Andersen, M. Cummings  
 Lidia's Restaurant, P. Gregory, B. Andersen  
 Loew's Theater's Yerba Buena Gardens: P. Gregory, B. Anderson  
 Vong Restaurant: P. Gregory, A. Sebeshalmi  
 Samba Grill: P. Gregory, D. Ades  
 Nobu Restaurant: P. Gregory, K. Donahue  
 Knoll International Showroom:  
 P. Gregory, D. Ades  
 OHM Club: P. Gregory, K. Ventry  
 Asian Spice @ Resorts: Rockwell Group, Lighting Consultant  
 EPRI: P. Jacobson

### PACIFIC NORTHWEST

(Ross Probert)

*British Columbia Section*

(Andrew Lee)

Walnut Grove Aquatic Centre:  
 J. Scott  
 Architectural Institute of British Columbia: J. Scott  
 Prince George City Hall Council Chamber Renovation: L. Logan, C. Maddison  
 Valley Cosmetic Surgery Associates: M. Taubensee, G. Pace  
 Commodore Ballroom Renovation:  
 D. Welch, P. Hodson  
 Toni & Guy Hairsalon: M. Joller, G. Shinkewski  
 Mattson Residence: B.L. Pacey  
 808 Nelson Street Renovations:  
 D. Welch, J. Stanley, H. Cochlin, I. Lee  
 Queen Elizabeth Theatre Additions:  
 D. Welch, J. Stanley  
 Mountain Equipment Co-op Head Office: J. Stanley, S. McLeod

*Chinook Section* (Bruce Spankie)

Agrium Head Office: M. Rajan, G. Chomiak  
 Aurora: B. Currie, R. Quesnel, M. Burkart  
 St. Mary's Elementary School:  
 B. Fair  
 Anderson Hall: P. Mercier, R. Quesnel  
 Container Yard: P. Mercier  
 St. Ambrose Elementary/Junior High School: B. Fair  
 Smed International Headquarters:  
 L. Barone, D. Carrethers  
 Scotia Centre Renovations:  
 K. Nguyen-Cao  
 Central Auto Parts – Warehouse:  
 D. Marshall, K. Parmar, J. Love

*Northern Gateway Section:*

(Ross Probert)

Physical Education Gymnasium & Weight Training Rooms: R. Wayne Rogers  
 Cameron Library – Lighting Upgrade:  
 R. Wayne Rogers

*Oregon Section* (Stephanie Cissna)

Arch Cape Residence: A. Humphrey  
 Hillsboro Stadium: A. Humphrey  
 Pioneer Courthouse Square:  
 A. Humphrey  
 Branches Bookstore & Café D'Vine:  
 L. Blake, C. Wyckoff  
 Dumold Residence: T. Dearborn  
 Anna Skibska at Bullseye Glass:  
 V. Batho-Demelius, E. Levin  
 St. Anthony's Catholic Church:  
 J. Davis  
 Hickox Salon: J. Davis  
 White Oak Semiconductor: A. Viado  
 Printer Test & Assembly Laboratory:  
 T. Adams  
 Hotel Pattee: J. Benya  
 Grand Casino Grand Veranda:  
 J. Benya  
 Portland State Graphic Arts:  
 J. Benya  
 Lithonia Lighting Center: J. Benya, M. Maloney  
 Millennium Plaza Park: A. Humphrey  
 Church of St. John Fisher:  
 P. Luntsford, B. Liddell, D. Buerer

*Puget Sound* (Gloria Koch)

Eichler Residence: S. Kenette  
 Pacific Science Center Butterfly Exhibit: D. Salinas  
 Cinerama Theatre Renovation:  
 S. Rhodes, A. Quiricone  
 Seattle Police Department West Precinct/911 Center: S. Ducich  
 Key Arena Courtside Club: D. Fong, M. Strawn  
 Downtown Helsinki Master Plan Esplandade and Side Streets:  
 R. De Alessi, E. Metso, E. Rouskou  
 Doernbecher Children's Hospital:  
 D. Fong

### SOUTH CENTRAL

(Billy Lee Shelby)

*Mississippi Section*

(John Thomas Rhalay)  
 Delta State University Wyatt Gym  
 Lighting Retrofit: D. Church

*continued on following page*

## IIDA Entries

*continued from previous page*

Hattiesburg Convention Center – Interior Lighting: S. Schultz  
 Hattiesburg Convention Center – Outdoor Lighting: S. Schultz  
 East Central Community College Student Services/Union Phase One: R. Turner, D. Church, J. Young

*Mid South Section* (Robert Burris)  
 Sossaman Bateman & Associates Advertising: R. Puckett  
 Fed Ex World Technology Center: D. Roederer, L. Antonow  
 First Presbyterian Church: R. Mosier

*Tennessee Valley Section* (Bob Harden)  
 Municipality Justice and Public Safety Center interior: A. Denami, A. Coles  
 Municipality Justice and Public Safety Center exterior: A. Denami, A. Coles

### SOUTHEASTERN REGION

(E. Frank Clements)  
*East Carolina Section* (Michael Durman)  
 Re-Lighting the North Carolina Capitol: R. Lane, R. Henderson  
 Holmes Residence: S. Pomeranz, K. Shaw

### SOUTH PACIFIC COAST REGION

(Matt Sedlock)  
*Golden Gate Section* (Juanita Cox)  
 Novell: H. Banks, D. Witte, E. Blasé  
 Orpheum Theater: D. Witte, H. Banks  
 Scott Residence: H. Banks  
 Electronic Arts Exterior: H. Banks  
 San Francisco City Hall Renovation: A. McDonald  
 Escalon High School Library: B. Sheifer, R. Ofsevit, S. Walerczyk  
 San Francisco City Hall: A. McDonald

Willow Glen High School Gymnasium: B. Sheifer, R. Ofsevit, S. Walerczyk  
 Sony Metreon: P. Glasow, D. Orgish

*Hawaii Section* (Eric Minasato)  
 An Architect's Office: D. Daniel

*Los Angeles Section* (Bernard Bauer)  
 COSI Progress: P. Gallegos, K. Haas  
 Vermont Santa Monica MetroRail Station: E. Teal Brogden  
 Edison International Field of Anaheim: A. Powell  
 Terminator 2 3D: Exterior: A. Powell  
 Terminator 2 3D: Preshow & Retail: A. Powell  
 Spirit of Ford: C. Israel  
 Parkers Lighthouse: J. Reeves, C. Israel  
 Juxtapose: C. Israel, J. Reeves  
 Bayside: C. Israel, J. Reeves  
 Delmonico's: C. Israel, M. Frank, D. Kohnen  
 The Venetian – Interiors: C. Israel, M. Frank, D. Kohnen  
 The Venetian – Exteriors: C. Israel, M. Frank, D. Kohnen

Moody Gardens Aquarium: C. Israel  
 Alden Residence: P. Quigley, E. Erdman, C. Degenhart  
 Toon Lagoon at Universal's Islands of Adventure: P. Gallegos, A. Ebben  
 Harrah's Las Vegas: Entry Marquee: K. Haas, D. Hahn  
 LEGOLAND California: P. Gallegos, K. Haas, A. Ebben, D. Hahn  
 Triceratops Encounter: L. Passamonte Green, T. Patrick  
 Camp Jurassic: L. Passamonte Green, T. Patrick  
 Earl Burns Miller Japanese Garden: L. Passamonte Green, T. Patrick  
 River Adventure: L. Passamonte Green, T. Patrick  
 Vermont/Santa Monica MetroRail Station: E. Teal Brogden

Hard Rock Hotel Palapa Hut & Grotto Bar: H. Stagl, M. Rosenberg  
 Rio Convention Center: M. Rosenberg, H. Stagl  
 Venus Fort Shopping Mall: M. Rosenberg, J. Cooper  
 Colburn School of Performing Arts: E. Teal Brogden, J. Dunn, A. Friend  
 Ground Zero Advertising Agency: E. Teal Brogden, L. Nguyen  
 Safeco Field: E. Teal Brogden, J. Dunn, F. Gerardo

Roland Corporate Headquarters: B. Hutchinson, D. Hollingsworth  
 Game Works Streets of Woodfield: E. Thomas, J. Windle, D. Hollingsworth  
 Game Works Easton Town Center: E. Thomas, J. Windle, D. Hollingsworth  
 Jim Cameron's Titanic: The Experience: L. Passamonte Green, J. Decker  
 Museum of the Cherokee Indian: L. Passamonte Green  
 Muriel's Supper Club: R. Rutherford, J. Decker

Sony Metreon: Where the Wild Things Are: P. Gallegos, Y. Kennedy, A. Ebben  
 20th Century Fox Post Production and Screening Facilities: E. Teal Brogden, L. Nguyen  
 Hard Rock Hotel Spa: M. Rosenberg, H. Stagl

### SOUTHWESTERN REGION

(Sean Gaydos)  
*North Texas Section* (Sheila Peters)  
 Fossil: B. Bauer, T. Ryan  
 Neiman Marcus Ala-Moana: B. Bauer, M. Pucci  
 Sprint PCS – Fort Worth Customer Care: R. Alexander, J. Kienast  
 DKNY Flagship Store: B. Jansing, C. McKenney  
 Donna Karan Collections: B. Jansing  
 Jay Residence Landscape Lighting: E. Levin, M. Godfrey

Giles Bettison & Jessica Loughlin at Bullseye Glass: E. Levin, V. Batho-Demelius  
 Durant Toyota: M. Tresp, J. Whelan  
 Allen High School – Phase I and II: H. Hobbs  
 American Airlines Admirals Club – Terminal B – DFW Airport: A. Lang  
 SBC – Internet Services: S. Oldner  
 Ensemble Studios: K. Travell  
 Daltile – Tile & Stone Gallery: R. Mizell, G. Iseuman, C. Simpson  
 Beach House: B. Boueya, S. Oldner  
 Les Charolais Steakhouse: B. Yancey

*San Jacinto Section* (Patrick Murray)  
 Kelsey Seybold MCC Interior Lighting: L. Cummings  
 Kelsey Seybold MCC Exterior Façade Lighting: L. Cummings  
 Private Residence: J. Bos, B. Bowen, J. Youngston  
 American General Corporate HQ: J. Bos, B. Bowen, J. Youngston  
 Splitrock Corporate Headquarters: R. Jeter, Gensler Architects  
 Valero Energy Corporation: M. Smith  
 Private Residence: J. Bos, J. Youngston

## New Members

Membership Committee Chair Jim Sultan announced that the IESNA gained 6 Sustaining Members and 117 new members (M), associate members, and student members in March.

### SUSTAINING MEMBERS

CDH Partners, Marietta, GA  
 Daniel Frankfurt, PC, New York, NY  
 Einhorn Yaffee Prescott, Washington, DC  
 Engineering Services, Seattle, WA  
 Northern Illumination Co. Inc., Portland, OR  
 PG&E Energy Services, San Francisco, CA

### INDIVIDUAL MEMBERS

**Canadian Region**  
 Luc Pierre Samson (M), Genivar, Montreal, PQ

### East Central Region

Kevin D. Gibson (M), Gatter & Diehl Inc., Harrisburg, PA  
 Randy Soliday, Metalumen, North Wales, PA  
 Daniel P. Thomas (M), Arlington, VA

### Great Lakes Region

John G. Ayres (M), Burgess & Niple, Ltd., Columbus, OH  
 Douglas Buyce (M), Steelcase Inc., Grand Rapids, MI  
 David Hersher (M), Progressive AE, Grand Rapids, MI  
 Edward C. Kramer (M), Carborundum Abrasives Co., Niagara Falls, NY  
 Sri Rahm, General Electric Lighting,

Cleveland, OH  
 Bruce R. Roberts (M), US Coast Guard, Cleveland, OH  
 Steve Roberts (M) Billitier Electrical Inc., Rochester, NY  
 Jeffrey M. Saylor, Abornmarche Consultants Inc., Benton Harbor, MI  
 Michael S. Schneider (M), Rose Technology Group, Pittsburgh, PA  
 Jamie Schroyer, Helmig Lienesch & Associates, Dayton, OH  
 Scott Thompson, BYCE & Associates, Kalamazoo, MI

### Intermountain Region

Elizabeth Alvarez Del Castillo, International Dark Sky Assoc., Tucson, AZ  
 Jerry Coons, WEXCO Dist. Inc., Denver, CO  
 Bill Desberg, Ackermann Lighting Inc., Tucson, AZ  
 Amy Dockter (M), CSHQA, Boise, ID

*University of Colorado at Boulder*  
 Nicole Skogg

### Midwest Region

Robert Adams, Omaha Public Power District, Omaha, NE  
 Cameron K. Collins, Malone Finkle Echhardt & Collins, Springfield, MO  
 Eric Heathcoat, Latimer, Sommers, & Associates, Lawrence, KS  
 Scott A. Mueller, Howard & Helmer Architects, Wichita, KS  
 Pamela J. Nagel (M), Heidman & Associates Inc., Springfield, MO  
 Joseph W. Zachar Jr. (M), ACME Electric Co., Cedar Rapids, IA  
*Kansas State University*  
 Erica Bowden, Carrie Burgardt, Scott Crumley, Adam Golubski, Nathan Malone, Gwyndolyn D. Snyder, Jordan R. Steele

*continued on following page*

## New Members

*continued from previous page*

### North Central Region

Al Brace (M), Van Ert Electric Co., Wausau, WI  
 Sarah Conners (M), Northern States Power, Minneapolis, MN  
 Jay M. Eissner (M), SPI Lighting Inc., Mequon, WI  
 Shannon C. Gaines, Sterner Lighting Systems Inc., Eden Prairie, MN  
 Michael J. Heun, Phoenix Products Co., Inc., Milwaukee, WI  
 Richard Hombsch (M), Hammel, Green & Abrahamson, Inc., Milwaukee, WI  
 Pete Kirilin, Exelon Infrastructure Services, Ardmore, PA  
 Richard Locklin, Lightswitch Inc., Tower Lakes, IL  
 James D. Prusinski, Pace Electric Inc., Hales Corners, WI  
 Deborah S. Ramstorff, Gray Supply Topbulb.com, East Chicago, IN  
 Joseph Sternbauer III (M), Environmental Systems, Chicago, IL  
 Morten Sunde, Ruud Lighting, Racine, WI  
 William T. Sutherland (M), Minnatech Engineering, Eden Prairie, MN  
 Chris R. Tomich (M), Ciorga Group Inc., Chicago, IL  
 Joseph M. Vondra, Ciorga Group Inc., Chicago, IL  
*University of Illinois at Chicago*  
 Jonathan M. Grant

### Northeastern Region

Jim Allen, Zumtobel Staff Lighting, Highland, NY  
 Greg W.P. Cascadden (M), Fay, Spofford & Thorndike, Inc., Burlington, MA  
 Rosemary Ligabo Cona, Kravet Fabrics Inc., Merrick, NY

Kathryn M. Conway (M), Rensselaer Polytechnic Institute, Troy, NY  
 Paul Grossman, Lightolier, East Hartford, CT  
 Edward Jaffe (M), Microworks Corporation, Great Neck, NY  
 Karl Jesaitis (M), Daniel Frankfurt, PC, New York, NY  
 John Johnson (M), West Hartford, CT  
 William Kent Schoenfisch, Schoenfisch Inc., Richfield Springs, NY  
 Arnold L. Sia (M), LKU Group Inc., Elmwood Park, NJ  
*Boston Architectural Center*  
 Tina Chararian Kroschian, Samantha Morrow  
*Fashion Institute of Technology*  
 Susan Cozzi, Eliza McCay  
*Parsons School of Design*  
 Eileen Pierce, Lori Robinson, Jonathan G. Terry, Bintarn Varatorn  
*Pratt Institute*  
 Alicia Cannon, Janly Lo, Tamaki Terai  
*Princeton University (New York School of Design)*  
 Lydia Unfried

### Pacific Northwest Region

Chris T. Bicket, The Transpo Group Inc., Kirkland, WA  
 James Bos, The LumeVision Group, Okotoks, AB  
 Patricia Braddie (M), R.A. Duff & Associates Inc., Victoria, BC  
 Mark Godfrey, Pacific Lightworks, LLC, Portland, OR  
 Colin MacDuff, OSRAM SYLVANIA, Richmond, BC  
 Grant Parthemer (M), Columbia Consulting Engineers, Portland, OR  
 John F. Rogers (M), Engineering Services, Seattle, WA  
 Keith Rowan, Northern Illumination Co. Inc., Portland, OR  
 Mike Sabourin (M), SLS Lighting, Victoria, BC

Sandy Stannard (M), University of Idaho, Moscow, ID  
 Steven Tadic, Northern Illumination Co. Inc., Portland, OR  
 Doug Webb, Coast Lighting Ltd., Victoria, BC

### South Central Region

Jason Conley, Entech Engineering Inc., Nashville, TN  
 Marlene G. Richard (M), Energy-Gulf States, Inc., Baton Rouge, LA

### Southeastern Region

Joseph Bobin, Holophane Corp., Norcross, GA  
 Mark H. Dunlap (M), Walt Disney Imagineering, Lake Buena Vista, FL  
 Willaim Gaddy (M), CDH Partners, Marietta, GA  
 David J. Hatcher, GE lighting Systyems, Hendersonville, NC  
 Eddie Johnson, Angel Group International, Louisville, KY  
 Efrain Lopez, Tecnomaya, Miami, FL  
 Tyler Miller (M), Lithonia Lighting, Conyers, GA  
 Shannon Parish, Rogers, Lovelock & Fritz, Winter Park, FL  
 John T. Patrick (M), TWR Lighting, New Port Richey, FL  
 Daniel J. Pitcher (M), Hubbell Lighting Inc., Plano, TX  
 Linda Rainey (M), SESCO International, Fort Lauderdale, FL  
 Fred Skinner, Rexel/Consolidated, Miami, FL  
 Tom Thompson, Group Lighting Sales, Inc., Largo, FL

### South Pacific Coast Region

Bradley S. Becker, Aromat Corp., San Diego, CA  
 Christopher Bowsher, Christopher Bowsher Architect, Redondo Beach, CA  
 Kathleen E. Duca, Tube Lighting Products, Las Vegas, NV

Phil Falkenstein, Imperial Irrigation District, Imperial, CA  
 Linda Harper, Irvine, CA  
 Melinda Haverland, Juno Lighting Inc., Danville, CA  
 Richard K. Hopper (M), RKH Civil & Transportation Engineering, Foster City, CA  
 Michael Lindsey, CAL Lighting, Sacramento, CA  
 Deborah Roberts, ERCO-USA, Santa Barbara, CA  
 Victor G. Steffen (M), Keller & Gannon, San Francisco, CA  
 Lynne Streit, PG&E Energy Services, San Francisco, CA

### Southwestern Region

Gerry Bullock, Lighting Inc., Houston, TX  
 Michael R. Galvin (M), Architectural Lighting, Dallas, TX  
 Allison Geer, The Vincent Association, Dallas, TX  
 Thomas Mayer (M), Wendy Lopez & Associates, Dallas, TX  
 Victor Palacio (M), Consultores En Iluminacion, Mexico  
 Guillermo Perez (M), Construlita de Queretaro SA de, Mexico  
 Peter L. Roth (M), CEW Lighting, Dallas, TX  
*Universidad Anahuac Del Sur, S.C.*  
 Victor-Gabriel Reyes-Retans  
*El Centro*  
 Laura Thielen

### Foreign

Venzy Bian, GE China Lighting Tech. Center, Shanghai, China  
 Bocchio Gianluigi (M), EDIL – Bocchio SML, Italy  
 Carlos Jimenez (M), Advanced Fiber Optics, Barcelona  
 Adelina Ling, Beaverite International Ltd., Hong Kong  
 Nguyen Q. Thong, Cao Tran, Vietnam

## Call for Entries

The New York Chapter of the IESNA is announcing a call for entries for the 2000 Richard Kelly Grant, an educational grant that recognizes and encourages creativity in the use of light.

Cash grants up to \$2,000 will be awarded to anyone 35 years old or younger (at the time of submission) studying or working in the illumination field and who demonstrates innovative work in the art or science of illumination. This grant is to further encourage their endeavors.

Submission requirements include:

A typed, one-page proposal (250 words maximum) which details how light is utilized in its most challenging, innovative, and resourceful way. The proposal should include how the recipient would use the grant to pursue their interest in light. A separate written description must accompany all visual materials (i.e., slides must be keyed to the description. Name and date of birth must also appear on all submittal materials.

Submissions may include manuscripts, 35mm slides, photographs, video tapes (VHS format cued to 10 minutes max-

imum length), drawings, models, or text that illustrates the work considered. Applicant submitting material that requires special audio/visual equipment must notify the IESNA in advance and arrange for equipment to be delivered to the IESNA address below.

- A cover page providing a simple and concise overview and explanation of the body of work must accompany any technical papers submitted.

- Include a self-addressed, stamped envelope with any submission you wish returned. Submissions without envelopes will NOT be returned.

Deadline for entries: **JUNE 16, 2000.**

Submissions should be sent to: The Richard Kelly Grant, c/o IESNA, 120 Wall Street, 17th Floor, New York, NY 10005, Attn: Adalisa Machado.

*The grant is named for lighting pioneer Richard Kelly who devoted his life to understanding the capabilities and potential of light. He was a true innovator who transformed the ordinary into an exaltation of the senses.*

The Quantum Restaurant in the Swissotel has a sleek yet inviting feel. (right) The restaurant's 56th Street façade features a curvilinear, frosted glass canopy lit with pale and deep amber patterns. (below) The custom pendants were created based on a suggestion from the restaurant's architect, Jorge Rosello. The fixtures are 10 inches square by 3 inches high and feature four 20 W xenon filled minican lamps.

# QUANTUM'S LEAP



*The Quantum Restaurant at the Swissotel gives weary travelers an elegant and romantic spot to dine. Paul Gregory reserves us a table and tells how he used lighting to create the perfect ambience.*

**A**rchitecture of modern shapes clad in beautiful warm woods gives Quantum restaurant its sleek and modern, yet warm and inviting feel. While its predecessor displayed a very traditional lighting design built around faux-candle chandeliers and sconces, Quantum brings a fresh approach to New York's Swissotel.

For Focus Lighting, the New York firm charged with designing Quantum's lighting to complement interior designs by Jorge Rosello and Associates, versatility was key. The

restaurant needed to be bright and welcoming for the hotel's breakfast crowd, yet diffuse and inviting for dinner and well into the night. Paul Gregory, Focus Lighting's principal designer, and Charles Cameron, project designer welcomed the challenge.

"The restaurant's low ceiling required a clean look," said Cameron, who utilized small diameter trimless downlights throughout the space. "This required careful work on the part of the contractor, and a lot of coordination from us to help make sure everyone was happy with the result."

Quantum's open plan presents visitors with a long view punctuated with



Display pedestals with an internally lit glass shelf and MR16 accents frame the view into the expo kitchen. Gregory had to consider the needs of the chef as well as the visual composition from the dining room.

repeating returns of leather paneled window bays. Focus Lighting accented each panel with a tightly focused streak of light from above. A dichroic glass lens helped to unify the color of these lamps with the warmth of other internally illuminated lighting elements.

Among the most important lighting elements in the space are the custom pendants arrayed across the ceiling of the restaurant. The fixture design began with a shape and material suggestion from architect Jorge Rossello. A square translucent shade in rosy amber with an open top provided the maximum uplight component. Focus Lighting's first challenge was to determine the best lamping for the fixture, which was only 10 inches square by 3 inches high, and the main source of light in the room. "We chose an array of four 20 W xenon filled mini-can lamps to spread out the sources for a less spotty look," remembers Gregory. "We were able to get the most light output without hotspots or heat problems."

Focus Lighting drew a fixture based on this lamp package which was presented to the interior designer and Sirmos, the fixture manufacturer. The fixture continued to evolve based on input from the design team and the manufacturer. A prototype of the shade was then fabricated and sent to Focus for evaluation. Final lamp choices and fixture height were all determined based on a mock up of the fixture and lamp cluster.

Two adjustments were made to the design at that time; the first was the addition of a polycarbonate paper liner to help diffuse the lamp image that was overly present through the shade. Secondly, Focus Lighting felt that the uplight component was



too strong and would overpower the glow of the shade. Various perforated metal and metal mesh options were tested over the top of the open fixture to diffuse and reduce the uplight. Finding the right material was complicated by the fact that the small lamps acted as point sources, projecting the pattern of the perforated metals onto the ceiling and again distracting from the shade's simple glow. Having tested many options, Focus chose a stainless steel mesh that had all the desired properties.

A custom sconce was also required and was coordinated to match the pendants. Focus Lighting and the interior designer worked with a custom fixture manufacturer to adapt an existing design to suit this task, choosing an existing shape to be cast in a matching color to the pendants.

The background for the patrons' first view into the restaurant is the internally illuminated back bar unit. The back plane of acrylic panels is backlit with 2800K warm white neon to give the bar a warm and inviting glow. These acrylic panels were also made in amber to match exactly the custom pendants and sconces in the restaurant. Focus used neon in this application in order to get enough intensity while providing for ease of maintenance. The neon tubes were aligned with the shelves to help reduce the possibility of a distracting lamp image, as space for only a small cavity was available. As access to the neon was difficult, Focus worked with general contractor Atlantic Construction to create a system where neon was mounted on plywood panels that slid in and out of the back bar unit on curtain track.

Custom pendants follow the curve of the bar along with cylindrical shades in amber resin, illuminated with clear flame shaped lamps. Located within the curve of the bar is an island of stainless steel and glass that serves both decorative and functional purposes. At either end of the bar island are three MR16 accents in the base uplighting glass shelves and adding sparkle



Line voltage, linear halogen wall washers create a soft glow on the leather wall panels. The fixtures are mounted to the bottom of the coves which surround the main and rear dining rooms, emphasizing the space's open plan.

to the clear liquor bottles stored on those shelves. A neon light box runs the length of the island, creating up- and downlight to provide a glow on the glass shelf of bottles above the light box, and on glassware stored below.

Two custom glass partitions separate the restaurant from the hotel's lobby. An alternating scheme of rose and amber dichroic lenses on recessed MR16 accents from both sides of the glass creates a field of saturated color and accents the metal designs within the custom art glass panels.

Another of the space's most dramatic features are display



Quantum's back bar is the focus for patrons' first view. (left) Custom pendants with cylindrical shades in amber resin are illuminated with clear flame shaped lamps and follow the curve of the bar. (right) The acrylic panels along the bar's back wall are backlit with 2800K warm white neon for a warm and inviting glow. The neon tubes were chosen for their intensity and ease of maintenance.

niches in the dining area walls. Each of the approximately one dozen display niches combines an uplight wash of light on the red back plane with an MR16 accent from the top of the niche to "pop out" the flower vase from a rich colored background. Focus Lighting coordinated with the millworker to incorporate A-lamps under a frosted glass panel at the base of each unit, an inexpensive solution creating a rich, dynamic effect.

Focus chose a line voltage halogen linear wall wash fixtures to create a glow on the leather upholstered wall panels. These fixtures are mounted to the bottom of the coves which encircle both the main and rear dining rooms. "Early in the design process we were going to have a glass partition between these rooms to create a private dining space," notes Cameron. "Ultimately, the owner decided that preserving the open plan of the dining room was more important than the use they would derive from the private space."

Display pedestals integrated into columns in dining room areas feature an underlit glass shelf and an MR16 accent from above to accent changing floral arrangements. Two of these pedestals frame the view into the expo kitchen. "Balancing the needs of the chef with the visual composition from the dining room is always tricky," remarked Gregory. The kitchen was lit with incandescent fresnel lensed downlights controlled on a wall dimmer in the kitchen.

All lighting loads in the bar and dining areas are connected to a central dimming system to enable manager Axle Rudolph to vary the restaurant's look over the course of the day. Focus Lighting opted for ETC's Unison electronic control system with a touch screen interface. Both Rudolph and the hotel's chief engineer, Robert Hennessy, offered positive comments with regard to the ease of control and flexibility provided by the system.

Using a preset dimming system allowed Focus to make dual use of the restaurant's perimeter ceiling cove lighting. During breakfast and lunch services, a low voltage festoon strip in the cove is set at a high level, and contributes to the overall illumination level. The same lightstrip at a lower intensity serves as a glowing accent band in the restaurant's more subdued compositions for late night and dinner.

Focus worked with project engineers at Southport Associates to keep lighting loads down so that the addition of new HVAC units, and their cost, could be avoided. This coordination was important in getting some very tight ceiling conditions to work out for all the disciplines.

Attracting visitors in midtown Manhattan requires a dynamic presence on the

street, and Focus Lighting worked with Rossello and owner's representative Reto Schoch to find the best solution. Rossello created a curvilinear canopy of frosted, linear textured glass which Focus lit in a pattern of pale and deep ambers. Repeating sconces adorn columns on the restaurant's 56th Street façade. Focus added a piece of amber glass to the Bega sconces to complement the view into the restaurant's glowing interior through the generous windows.

Greeting visitors with an attention-getting look from the street, and replete with elegant details inside, Quantum is well on its way to becoming a fixture in midtown New York dining. "The food is excellent," noted Cameron, "so we expect that we'll find plenty of opportunities to visit."



**The designer:** Paul Gregory was trained in theatrical lighting at the Goodman Theatre School of the Art Institute of Chicago and received an MFA in architectural lighting from Parsons School of Design. His lighting projects include hotels, retail outlets, outdoor applications, and restaurants. Gregory has received awards from the IIDA, IALD, and the ASID. He recently won *Lighting Dimensions* magazine's Lighting Designer of the Year

Award for his work on the Entel Tower in Santiago, Chile. He was last featured in the April 2000 *LD+A*, where he and architect David Rockwell discussed their LIGHTFAIR INTERNATIONAL seminar. Gregory has been an IESNA member since 1983.

The showroom for furniture designer Dakota Jackson is an abstract architectural jewel. (right) The perimeter wallwashers are energy-efficient T8s with electronic ballasts. Display lighting is strategically located in open slots easily accessible for maintenance and focussing. (below) Halogen lamps are used not only for their color rendering and optical control abilities, but also for their long lives. To further simplify maintenance, only four lamp types are used in the entire showroom.

**W**hen we received the call from Peter Eisenman's office to discuss the possibility of collaborating on a furniture showroom for Dakota Jackson, we quickly realized that several challenges lay ahead for us. As always our team rose to the occasion to overcome the fast-paced schedule, tight budget, California's Title 24 Energy Code, and the limitations with the physical space the showroom would occupy.

However, our true challenge was to design a lighting system that reinforced the iconoclastic architectural vision while providing a flexible, functional, and visually comfortable retailing



## SHOWROOM SERVICE



*When furniture manufacturer Dakota Jackson needed a new showroom in Los Angeles, they called on architect Peter Eisenman who brought in New York City-based Horton-Lees Lighting Design. **Barbara Horton** and **Stephen Lees** successfully illuminated this unique space comprised of abstract architectural concepts.*

lighting solution. The resulting lighting design helps create the surreal quality the owner desired and provides a subtle and elegant backdrop for Dakota Jackson's furniture.

When we first started the project we were shown a photo of a living room bathed in warm sunlight. In actuality, the space was a windowless "show box" that was 25 ft wide by 125 ft long. The room was intersected by an articulated sculpture that meandered through the space to create individual showroom vignettes where Dakota's furniture would be displayed.

During the course of a two-month design process in which

out. In the fabric display area we used an incandescent quartz source to enhance the texture, color, and richness of the textiles.

To further simplify maintenance, only four different lamp types were used for all the display lighting. Against this visually quiet backdrop, a dramatically illuminated sculptural canopy cuts through the space. Designed as an integrated part of the structure, recessed neon delineates the canopy's form and softly renders its faceted surfaces. The lighting system as a whole was intuitively easy to aim, maintain, and never appears cluttered or distracts from the furniture objects throughout.



The sculptural canopy—the showroom's architectural centerpiece—is delineated by neon which accents the canopy's form and softly renders its faceted surfaces. The innovative lighting scheme emphasizes the showroom's unique appearance to passersby.

we studied the architect's design models, we tested several lighting concepts to make sure they could meet all of our criteria, and built a full-scale mockup to demonstrate our lighting to the architect and owner in our light lab. Throughout the process we had worked with models (1 inch scale or smaller) until we were sure of the design and then built the full scale mockup to study lighting effects and installation issues.

When we asked the project architect to set up a meeting to demonstrate the lighting to Peter and Dakota she asked us to bring it over to their office. Needless to say they were all very excited to find it was "full scale" complete with lighting. She arranged for the meeting and with few minor modifications we found that we had a successful solution.

The lighting design system was conceived and implemented as part of a great collaborative effort among the team members given the complexity of the forms and structures. Internally, our New York team worked jointly with our Los Angeles team to supervise the installation, address local manufacturing concerns, and participate in the aiming of the showroom once it was complete.

A system of linear fluorescent wallwashers and high quality track lighting are strategically located in open slots for visual comfort and easy access. Neon was used in the architectural form to accentuate the planes as well as uplight the ceiling through-

The lighting design stayed within a tight budget by utilizing inexpensive "functional" fixtures that became an integrated part of the architectural design from the start, resulting in a simpler, more cost-effective design and installation. The entire lighting cost for the project was \$4/ft<sup>2</sup> and uses 2.5 W/ft<sup>2</sup>. It was designed and built within an 8 month period.

The project was a great exchange of ideas and concepts that led to a dramatic effect to compliment the merchandise. A further compliment was received when the showroom garnered a 1999 IIDA Edwin F. Guth Award of Excellence for Interior Lighting.



**The designers:** Barbara Cianci Horton is President and Stephen W. Lees is Executive Vice President of Horton-Lees Lighting Design, Inc. Their internationally recognized award-winning firm has a staff of 25 designers. Horton-Lees specializes in architectural lighting for all project types, including interior and exterior venues. Over the past decade the firm has assembled an extraordinarily talented team of design professionals and technical experts from across the country and abroad. The team's design talent, together with their well-established technical skills form the basis for the firm's proven ability to produce outstanding, award winning design solutions within the client's established budgets and schedules. Horton has been an IESNA member since 1990, and Lees has been a member since 1981.

Lighting designer Howard Harrison used a varied color palette but a very muted style in lighting *Martin Guerre*. (top, left) The principals are cast in open white to put them at the forefront, while the secondary characters are awash in saturated blues. (top, right) The DHA Digital Light Curtain comes into play during a scene in the cathedral. (below, left) At the show's tense climax, Guillaume threatens Bertrande as the village "burns." Amber filters help fill out the scene for a fiery effect. (below, top, right) Harrison's muted style is again evident in Arnaud's death scene. (below, bottom, right) Guillaume incites the villagers to riot as the ensemble is cast in open white, resulting in a tense, driven scene.



## MY FAVORITE MARTIN



When it first opened in London's West End in 1996, *Martin Guerre* was drubbed by most critics and largely ignored by the public. So it shut down and regrouped. Three months later, the second version was more popular and even received a 1997 Olivier Award for best

musical. Then it shut down again.

Then in 1998 it opened at the West Yorkshire Playhouse in Leeds, England with an entirely new direction, staging, and a revamped score. And the crowds, as they say, went wild. This was the version that was finally going to bow on Broadway dur-

*A funny thing happened on the way to Broadway for the musical Martin Guerre; it didn't make it. But that didn't stop Editor Mark A. Newman from catching this rousing show's national tour in Seattle.*

ing the 1999–2000 season. A pre-Broadway tour got underway across the United States with New York as the ultimate goal. There was one problem—no theaters were available on the Great White Way.

Although its arrival on Broadway in the near future is in question, one thing that cannot be questioned is *Martin Guerre's* emotional impact on those in the audience. Night after night, and from city to city, the audiences have been standing and cheering at this emotional tale of mistaken identity, stolen lives, and religious persecution. All this and it's a love story too.

Alain Boublil and Claude-Michel Schonberg, the team behind musical epics *Les Miserables* and *Miss Saigon*, created this musical journey through the intertwining lives of the residents of Artigat, France in the 1560s. Conall Morrison's direction brings the action and romance to life. John Napier's sets provide a perfect, albeit subtle, backdrop, and Howard Harrison's lighting flourishes with the emotions on stage.

Becoming a member of such a renowned creative team with two massive hits already on its hands was a tad daunting for

Harrison. "An awful lot was expected from the new show from the writers and producer of *Les Miz* and *Saigon*," Harrison said. "However, the show is so fundamentally different from those two shows that it was never that much of a problem."

The chief difference with *Martin Guerre* is its size; compared to the other two "blockbusters," *Martin Guerre* is much smaller and more intimate. There are no helicopters landing on stage or massive barricades full of French revolutionaries. Rather, the sets and scenery are stark but effective in contributing to the often torturous story on stage.

Harrison and the other designers were determined to give *Martin Guerre* a look of its own in order to separate it from its two predecessors. That being said, Harrison used a row of DHA Digital Light Curtains that were created by David Hersey, the lighting designer for both *Les Miserables* and *Miss Saigon*. "I'm a huge fan of David's work and I think that the DLCs are great instruments as they are able to easily create an 'epic' look and provide a very strong concentrated backlight in a tight area when it's needed," he said. "They were also very useful as they



play towards the end of the show—fire. An underlying theme of *Martin Guerre* is religious persecution. The village of Artigat—where the majority of the action occurs—is a Catholic stronghold, but Protestants are edging their way in, much to the Catholics’ dismay. When a band of Protestants reveals itself, the Catholics go on a rampage, setting fire to Protestant homes.

The fire erupts on a set piece that is integral to the show—a massive, multifaceted wall. The 32-ft high wall is at the back of the stage and

could skim down the back wall of John Napier’s set and give the wooden box a very different look.”

Since the show was on tour for a number of months in both the U.S. and the U.K., the lighting equipment had to meet certain requirements. For one thing the rig had to be easily packed up and moved in three days from venue to venue. The instruments had to also be able to do more than one thing. Therefore automated lights played a co-starring role in lighting the show. “The rig is comprised primarily of moving head fixtures,” Harrison said. “There’s a mixture of Vari\*Lite VL5Bs and Martin Mac 500s which basically light most of the show.” Harrison used 16 VL5Bs and 12 Mac 500s, and added that he was lucky to be working with a very talented automated light programmer—Rob Halliday from the U.K. “He was kept very busy!” Harrison said.

With an emotional show like *Martin Guerre*, the lighting was instrumental in reflecting the variety of feelings from the ensemble on stage. Much of this was done with Harrison’s use of color. “The color palette for the show is indeed extremely varied,” he said. “We tried to make the battle scenes as cold and stark as possible and the scenes in Artigat were lit very warm, especially during the drought scenes.”

These scene changes were facilitated by a careful choice of filters. The intense battle scenes used a mixture of Lee 201 and 161 while the scenes in Artigat mixed Rosco 3 (dark bastard amber) and open white light. For the big romantic scenes in the woods, very saturated blues filled the stage via Rosco 83 and 85 filters, which are medium blue and deep blue, respectively.

Another unique light source came into

is comprised of a series of panels that open in a variety of ways to represent doors, windows, and even a cathedral.

Created to look wooden and rustic, the wall is actually constructed of metal and it is the “planks” of this wall that are set on fire. In actuality it’s not the set piece that’s burning, but a highly flammable paste coated along the bottoms of the jagged panels which are designed and cut in such a way as to resemble burning wood. This gives the appearance of the fire “burning up” from the bottom. The paste burns very clean and hot and only for a specific amount of time.

The scene is a marvel of theatrical wizardry. Originally Harrison was planning to supplement that scene with some special lighting effects of his own. “It became apparent when we first mounted this production in the U.K. that most of the plans we had to supplement the real flame on stage were unnecessary,” he said. “Compared to the real thing, they looked very fake and phony. We ended up simply letting the fire do its stuff. It’s amazing how bright real flame is when seen on stage.” He added that he used fill-in light slightly for this scene, but only “very slightly.” A combination of Rosco 20 (medium amber) and 22 (deep amber) were used to create a “fiery” look on stage.

Away from the glow from the flames onstage, Harrison used a variety of colors throughout this production to emphasize the various characters. The ensemble remains on stage for most of

the action, and the right color combinations were integral to accent and highlight main characters, supporting characters, solos, and duets.

“Although the play has about nine principal characters, it is largely about the three central protagonists,” Harrison said, referring to Martin Guerre, his wife Bertrande, and Arnaud the faux Martin Guerre. “At some times we wanted to draw these three into the foreground while still lighting the other villagers. I ended up using color in order to achieve this.”

To keep the villagers out of the “spotlight,” Harrison used deep blues to cast them in a soothing glow, giving them an almost apparition-like appearance. “I tend to use a lot of strong color as a designer,” he said. “In fact, I ended up using quite a muted style, yet a varied palette on *Martin Guerre* mainly due to the gritty nature of the show.”

All through the show there are strong flashes of color, according to Harrison, but predominantly there is a mixture of correction blues and open white.

When asked which number from *Martin Guerre* gives him the most satisfaction as a designer, Harrison replied with one in which Bertrande sings “How Many Tears” as she laments her treatment by the Artigat citizens. She has been virtually abandoned by her husband, Martin, early on in the show. The superstitious villagers blame Bertrande for the drought that has dried out their farmland. Harrison added that, ironically, it’s probably the simplest scene in the show.

“Bertrande is lamenting her fate alone in the village church

with a simple crucifix behind her,” Harrison explained. “There are two tall narrow windows created in the back wall with a PAR64 light streaming through each one of them.”

A haze effect was added and the sight of two symmetrical strips of light with a lone, sad figure between them really captures the emotion of the song. The audience is allowed to feel her loss and her alienation.

Whether *Martin Guerre* joins its brethren *Les Miserables* and *Miss Saigon* in New York remains to be seen. However, as it wends its way throughout the U.S., throngs of new fans are being born after witnessing this heartbreaking tale of love and redemption.

**The designer:** Howard Harrison was born in London and trained at the Central School of Speech and Drama. He has worked extensively in theater and opera in the U.K. and around the world. He has lit productions for the Royal Shakespeare Company, Royal National Theater, Donmar Warehouse, English National Opera, Opera Australia, Kirov Opera and the Welsh National Opera, among many others. His work is represented in the West End by *Mamma Mia!*, a new musical based on ABBA’s music. Also in London, he did the lighting for *Private Lives* and *Look Back in Anger* at the Royal National Theatre; *Timon of Athens* for the Royal Shakespeare Company, *Swan Lake* for the English National Ballet. His work was recently seen on Broadway in *Kat and the Kings* and *Putting It Together*.

For those unable to see the *Martin Guerre* tour, take a look at the show’s official website—[martin-guerre.com](http://martin-guerre.com)—for a look at Harrison’s designs in action. Filmed scenes of the show are available on the website.



(top, left) For the romantic scenes, the actors are lit with a mixture of whites and blues.

(top, right) In the opening number between Arnaud and Martin the battlegrounds are as cold and stark as possible.

(right) A new light source comes into play when the village is set ablaze.

Harrison was surprised at how bright the actual flames appeared on stage. The only thing burning is a flammable paste covering the bottoms of the planks.



The Market at Newport is an office food court with the feel of an open-air market. (left, top & bottom) The solution was to develop large-scale “umbrella” luminaires that double as the ceiling system. A silver-bowl lamp originating at the focal point of a parabolic contour re-directs light for a more efficient use. The silver bowls also control glare.



**Dennis Clough** takes us on a tour from Newark, New Jersey to Manhattan to demonstrate how Gary Gordon uses light to define and enhance architectural aspects in a variety of settings.



The Martinez Valero shoe store is a stylish boutique in Midtown Manhattan where the store's design is only second to the upscale shoes on display. (right, top & bottom) The shoes are effectively viewed in profile due to halogen lamps emphasizing the rich background tones. Focal lighting separates browsing areas from fitting areas by accenting perimeter displays and benches. (opposite) A continuous band of signage is located above the storefront window displays due to the landlord's restriction of projections beyond the curtain wall. Signage is illuminated by fluorescents in channels while MR16s wallwash the sycamore display units.

# ASPECTS OF LIGHT

The integration of light into architecture is key to influencing and enhancing the human experience. Light patterns, including shade, shadows, and darkness can help to establish a sense of intimacy, privacy, playfulness, enchantment, or somberness.

Gary Gordon, the founder and principal lighting designer of Gary Gordon LLC in New York, has provided innovative solutions for a variety of corporate, institutional, residential, and retail projects using precise, high-quality lighting design since 1985. He works closely with the project team—designers, owners, and manufacturers—to create lighting systems that are fully integrated with the architectural design and enrich both the designers' and the client's concepts.

Success results from Gordon's sophisticated use of light, strong understanding of space, and a thorough knowledge of the newest light sources and systems. After working as an architect, Gordon apprenticed with the late renowned architect and lighting designer, Carroll Cline. In addition to a solid training in the fundamentals of lighting systems and applications, Gordon learned an architectural approach to lighting design—a process built on the premise that what is important is not what produces light, but rather where it lands.

## Order in the Court

At the Market at Newport in Newark, NJ, the design challenge was to create an office tower food court without the corporate cliché styling of the conventional cafeteria, without the use of fluorescent lamps, and within a tight budget and quick construction schedule. The solution was to develop the quality of an open-air marketplace with large-scale “umbrella” lighting elements that double as the ceiling system.

The architectural design of the servery is festive, reminiscent of warm-climate markets with canvas canopies filtering the sun. The dining hall is a calm, expansive, congregational space with an open, outdoor feeling. This is enhanced with soft, downward, parallel beams of light that inspire tranquility and accommodate changing table locations in the 6000 ft<sup>2</sup> dining hall. The beams of light are produced by a filament lamp originating at the focal point of a perfectly shaped parabolic contour. A silver-bowl lamp originating at the focal point of a parabolic contour re-directs light through the focal point, yielding a more efficient use of emitted light. The silvered bowl also provides built-in glare control.

Enlarging the scale of the typical parabolic reflector establishes a sense of intimacy. To reduce cost, reflectors double as the finished ceiling surface. A tight budget and quick construction timetable necessitated the innovative use of inexpensive, off-the-shelf materials. The least



expensive, 9-ft-diameter, parabolic-contour found is an aluminum, satellite antenna “dish.” Installed at a 10-ft height, these large-scale “umbrellas” suggest an al fresco restaurant.

## A Shoe In

A small, pre-existing boutique on a prominent corner location in Midtown Manhattan is reinvented within a tight budget and quick construction schedule.

Careful concealment of lighting equipment places emphasis



on the space and on the merchandise. Halogen lamps provide the richness of background color tones, which in turn allow the mostly black shoes to be viewed effectively in profile. This ambient light provides a well-lighted background for product display and optimum visibility from the street. Focused light leads the customer's eye around the store and facilitates traffic flow and product inspection.

Focal lighting helps to separate browsing and fitting functions by providing a highlight for the perimeter display and on the benches. Ambient light is reflected from light-colored walls and sycamore wood surfaces around the perimeter of the space. The shoes on shelf displays are lighted with recessed object lights fitted with MR16s. Additional object lights are mounted vertically to provide focused light for the special displays.

Outside the store, a continuous band of signage is located

above the storefront window displays, providing optimum identification of the store from near and far. This was necessary to overcome the landlord's prohibition against projections beyond the curtain-wall. The signage is illuminated with fluorescent lamps in standard channels with integrated reflectors that uplight a white-painted backdrop, allowing the signage to appear like the shoes, in silhouette. The sycamore window display units conceal a surface-mounted, continuous wallwasher system with MR16 lamps.



(above & opposite) In the lobby of Prudential's corporate lobby, sculptures by Ned Smyth take center stage. The lighting had to accent the artwork while also being functional. Uniform illumination is provided from a concealed trough, grazing the marble walls and giving the lobby ambient light and spatial orientation.

(below & right) The St. Mark's Bookshop in the East Village moved to a new home where ambient lighting is provided by energy-efficient T8 fluorescents mounted in standard channels. Focal lighting (30 fc) on the books is provided by compact halogen lamps. The glare of the exposed PAR lamps is shielded through a unique and cost-effective use of photographer's reflector hoods.



### A Piece of the Rock

The lobby of Prudential's Washington Street Building in Newark was a large, dark, two-story interior space that lacked atmosphere. Sculptor Ned Smyth and the Grad Partnership Architects were selected to revitalize it. Smyth designed a new terrazzo floor that was integrated with several of his freestanding sculptures. Gordon's lighting design was intended to accentuate the sculpture, as well as to provide a functional environment for circulation.

The sculpture is given center stage, highlighted by focused directional fixtures recessed in the plaster ceiling. Each piece of sculpture is lighted on all four sides, but, at the sculptor's suggestion, one side receives a noticeably greater quantity of light than the others, as if the pieces were being lighted by the sun.

Continuous uniform illumination from a concealed trough grazes the surrounding marble walls, giving the lobby ambient light and providing spatial orientation to observers. Several factors and restrictions forced Gordon to design a new lighting trough from scratch. These factors included a severely limited trough depth, the need for light to project the entire wall height, the need for supplying conditioned air through the trough, and a desire for a 3000K color temperature.

The finishing touch on this lobby renovation was the installation of a sophisticated dimming system that controls the brightness of the perimeter lighting as well as providing individual control for each of the four sides of every piece of sculpture. Settings for daytime, nighttime, cleaning, and special events are permanently stored.

### Extended Shelf Life

St. Mark's Bookshop, the popular East Village outpost for counter-culture literature and alternative publications has been

long known for its anti-establishment position in the bohemian East Village. In 1993, the bookshop was forced by rising rents and a general deterioration of St. Mark's Place to relocate to new premises at 3rd Avenue and Stuyvesant Street, in the 2500 ft<sup>2</sup> first floor retail space of Cooper Union's Residence Hall at New York University.

"Although we were moving away from the hub of the East Village, we were anxious that our clients and customers not think we were selling out or becoming like the larger, popular chains established in New York," said Bob Contant who owns and operates the store with Terry McCoy. "It was important to us that the store's aesthetics reflect the sort of thinking already typified by our merchandise, one to which our customer's would respond." Added McCoy: "We felt the store's interior should incorporate some rawness, perhaps an industrial aesthetic."

The partners hired Zivkovic Associates Architects and Gordon to execute the shop's design. The project's limited budget and short construction period prohibited the use or fabrication of custom components. To help realize the owners' vision of counterculture rawness, exposed systems employed such materials as industrial scaffolding, flexible metal ductwork, painted concrete floor slabs, and pre-cast terrazzo floor tiles. These materials and systems were chosen for their ability to satisfy functional needs as well as support the architects' aesthetic.

To maintain a sense of continuity with the bookstore's past, simple pine bookshelves, replicating the previous shop's design, were used around the perimeter of the interior. For

the lighting system, the owners had complained of a lighting problem in their previous location and knew they needed a new solution. Gordon provided an offbeat solution that, at first, the owners were unsure of. But once mock-ups were created, the owners decided they liked it and took a chance on Gordon's design.

Gordon wanted to employ a traditional retail lighting concept of providing a 1:3 ratio of ambient light to focal light. To provide the ambient lighting, energy-efficient T8 fluorescent lamps are mounted in standard channels affixed to the tops of the standing bookshelves. This light is reflected from white gypsum board panels suspended from the concrete slab ceiling to the space below. The fluorescent lamps are concealed and diffused by white acrylic panels. The T8 lamps are powered through wiring running through the floor up through the bookshelves. This saved on construction time and electrical costs.

For focal lighting, Gordon used his past experience from lighting the Prudential Insurance Headquarters to know that compact halogen 50PAR20 lamps located 15 inches on center, 1 ft away would produce 30 fc on the books. The PAR lamps are mounted in an extruded aluminum raceway. The raceway is mounted directly to the metal framing channels that support the acrylic diffusers and the bookshelf units.

The glare of the exposed PAR lamps is shielded through an innovative use of photographer's reflector hoods. At \$1.79 each, they are an inexpensive and thoughtful solution that also helps to establish a visual rhythm for the space. Ideally, Gordon would have used parabolic reflectors. But at \$35 each, they were impractical from a cost standpoint.

Throughout the space, the clear separation between ambient illumination for circulation and focused illumination for merchandise display contributes to the new location's success.

Much to Gordon's surprise and delight, the St. Mark's Bookstore won a variety of awards for lighting including an IALD Citation, an IES New York Section Lumen Award, GE's Award of Excellence, and a Society of American Registered Architects' Award of Excellence.

Gordon admitted that he did not expect to win awards for the St. Mark's Bookshop. But he admits that he feels that the reason why this store has received so much acclaim is that the design works on a variety of different levels. "First, it is a great example of the classic retail lighting scheme," he said. "Second, the lighting system is fully integrated into the architectural design, creating a singular solution. Also, there is something whimsical in the way the materials are used that seems to delight people."

In all these completed spaces where light and architecture are

truly integrated, one is not aware of the mechanics of light production, only of a comfortable environment that enhances one's sense of well-being. Gordon has embodied this philosophy in his design technique, attention to detail, and desire for close collaboration with the client. For Gordon, light is not simply introduced for function, but patterns of brightness are created that evoke emotions in the same way as background music. It is more than the quality of light Gordon is concerned with; it is the quality of life.



**The designer:** Gary Gordon is the founder and principal lighting designer of Gary Gordon LLC. Since 1985, he and his firm have provided innovative solutions for a variety of corporate, institutional, residential, and retail projects

using precise, high-quality lighting design. He works closely with the project team—designers, owners, and manufacturers—to create lighting systems that are fully-integrated with the architectural design and enrich the designers' and client's concepts. He is the author of *Interior Lighting*, published by John Wiley & Sons. He has been an IESNA member since 1985.

**The author:** Dennis Clough is Director of Momentum for Gary Gordon LLC. Prior to his current position, Clough led the development of the Department of Energy's Vision 2020 Lighting Technology Roadmap which he wrote about in an "Essay by Invitation" in the September 1999 *LD+A*. Clough has also worked to bring new technologies into the commercial buildings market through his work for the DOE's Rebuild America program. Clough holds a degree in architectural engineering from North Carolina A&T State

University.



(below and opposite, top & middle) The morning sunlight coming into the *Good Morning America* studios is controlled through filter-like shades that are activated by remote control. The lighting for the entire studio was created in virtual reality with a computer program that tested where the sun would be every minute of the day, every day of the year. (opposite, bottom) The studio's exterior is covered with 2.3 million LEDs, all of which are programmable. The huge board can also accept real-time video feeds from ABC shows.



## GOOD MORNING STARS SHINE

It's hard for the technical eye to watch ABC's *Good Morning America* show broadcast from its brand new studio in Times Square and not wonder, "How'd they do that?"

For instance, how'd they manage to control the transitional morning newscast from behind the centerpiece, 14-ft studio window without using traditional gels? And when the anchors walk outside the studio and onto the sidewalk, where's all the lighting apparatus that's supposed to follow them? And how'd they maneuver opening the set onto the street which requires moving three, 6-ton windows and only use two people?

The simple answer to all of these questions is: necessity. We all know how those creative types are always inventing the means that allow them to maintain membership on the cutting edge. And, in this case, building a 46,750 ft<sup>2</sup> building on

a corner of 44th Street—one of the busiest sections of New York—helps keep resourcefulness at zenith proportions.

The larger answer began three years ago with plans to produce a broadcast and production facility that would take ABC well into the future, not to mention visually bulldoze "those other morning shows," in terms of set, lighting, production quality, and versatility.

Roger Goodman, vice president of special projects for ABC television served as director and designer of the facility and says living up to the mandate of building a one-of-a-kind, production hub greatly depended on strategic lighting design early in the process. "Usually people design buildings and then the lighting people come in and do their thing. With the scale of this project, and the expectations we had, lighting design was critical," Goodman said. "Lighting, in particular, was second

***Toni Page Birdsong*** gives us a backstage tour of ABC's *Good Morning America* and their new studios at the crossroads of the world in New York City's Times Square.

only to the initial design and creation of the facility.”

According to Goodman, to adequately plan for lighting, normal measures were exceeded to achieve the desired result. For direction, Goodman employed the expertise of New York-based The Lighting Design Group.

“Basically, this was a monumental undertaking. Not only did we convert a former movie theater into a multi-level broadcast facility, we created a facility with options that can repurpose itself daily and last into the future,” said Goodman, adding LDG’s lighting mandate was very unique. “We asked The Lighting Design Group to do very special, very weird things for us in lighting and they found a way to do them.”

For instance, a huge problem with controlling the morning light from 7 a.m. to 9 a.m. in the second-floor, glass-encased studio required the team to literally invent automatic roller

shades. The thin, filter-like shades can be automatically lowered, via remote, over the windows, depending on the amount of natural light needed.

“Usually you have Plexiglas or gels that would get attached to the windows as needed and you’d have several guys installing them as the sun changed,” said Steve Brill, president of The Lighting Design Group and senior lighting consultant for the Times Square project. “We couldn’t do something like that under the circumstances. We knew what we needed so we had to invent the solution ourselves.”

Having such large windows above street level also required specific research on the natural light that would be cast inside the studio throughout the day. Using a computer program specifically written for the project, the crew was able to determine light intensity throughout the day and established exactly how to angle the main studio window before installation.

“Basically, lighting was designed in virtual reality,” Brill said. “The program tested where the sun would be every minute of the day, every day for a year. We were able to determine the exact effect of sunlight on the studio. Additional camera tests were done that told us we should angle the glass at exactly 11 degrees.” The computerized tests also helped establish the interior studio lighting which turned out to be a hybrid formula of both indoor and outdoor lighting, he added.

Inventing new technology to match the task was only part of the successful design grid, according to Craig Hill, director of studio operations for Walt Disney Pictures and Television.

“Technology is definitely driving this industry and we had to stay a step ahead of it for this project,” said Hill, adding that LDG designers traveled to Europe to examine the specific Arri/Transtech hoists and chose to bring home computer-controlled, motorized rigging systems for their indoor studio lights. “We have a total of 46 self-climbing hoists; I believe we are the first to use these in the U.S.”

According to Hill, the approach to technology and its streamlining effect on manual labor was a theme throughout the design of the facility.

Charles Gibson interviews actor Antonio Banderas in the GMA studios. The lighting for much of the studio turned out to be a hybrid of both indoor and outdoor lighting. The entire studio has amenities that allow the facility to reinvent itself on a daily basis.



Unlike a typical soundstage, the controls for the GMA studios are broken up throughout the building. Dimmers are on the fourth floor, the control room is on the second floor, the third floor contains production support, a prep kitchen, and set and lighting storage, and the studios are at street level and on the second floor. An 855 ft<sup>2</sup> section of the studio hangs over Times Square, providing a unique backdrop.

added that Walt Disney Imagineering’s role in the project included overseeing construction and contributing to creative design.

Another technical standout of the facility, said Hill, is that the controls are broken up throughout the building unlike a typical sound stage where talent, set, and controls are all in close proximity. “We have dimmers on the fourth floor and we run the cables down to the second floor

control room and then to the first floor; the length of cables used in this facility is tremendous.” The ABC facility became a reality due to the combined efforts of Walt Disney Imagineering, Walt Disney Studio

control room and then to the first floor; the length of cables used in this facility is tremendous.”

The ABC facility became a reality due to the combined efforts of Walt Disney Imagineering, Walt Disney Studio

## GMA's Lighting Shopping List

According to Jane Head, The Lighting Design Group's facilities coordinator, the one thing that stood out about this project, in terms of lighting, was complexity. Working within an enormous technical infrastructure, Head offered just a partial glimpse into the amount an type of lighting used:

- More than 250 Arri Fresnels
- 100 soft lites
- 40 HMI Fresnels
- 20 Altman Sky Cycs and Mini-Strips
- 6 Arri Pocket PARs
- 88 ETC Source Four PARs
- 110 ETC Source Four ellipsoidals
- 11 ETC sensor dimmer racks
- 2 ETC Obsession II control consoles
- 81 Connector Strips and 33 Outlet boxes with a total of 732-20a circuits and 126-50a circuits

Operations, ABC News, ABC Broadcast Operations and Engineering, and the architect of record, HLW International.

According to Hill, it took a number of creative players to design a facility with a goal to not only meet production needs, but to attract, entertain, and inform. They did it by designing the interior of the building—in three levels—as well as designing the outside of the facility to project their goal of entertainment throughout.

On the first floor—street level—there's a glass-enclosed, 2400 ft<sup>2</sup> studio that allows the audience to become part of the program. To do that, three floor-to-ceiling windows, when removed, create an atrium space. The window units are composed of the largest, anti-reflective coated, multi-layered trapezoidal glass in the world (nine layers!). Each pane weighs more than six tons and, rather than being moved by the entire New York Jets football team, the panes ride on a cushion of air and can be moved by just two people.

The second floor is comprised of a 4600 ft<sup>2</sup> studio where viewers see the primary set of *Good Morning America*. An 855 ft<sup>2</sup> section of the studio hangs over a Times Square marquee providing Broadway as a backdrop for the show. This floor is also where a majority of the backstage/production support facilities and technical space are located. A third level consists of production support, a prep kitchen, and set and lighting storage.

The exterior of the building was an equally impressive accomplishment, employing several outdoor entertainment elements never before taken on by a production facility. Designed by Walt Disney Imagineering, a 122 x 44 ft-high electronic billboard broadcasts 24 hours a day. The board, the largest in the U.S., contains 2.3 million LEDs which are all programmable.

According to Walt Disney Imagineering's Susan Bonds, who was the show producer for the exterior of the building, WDI's goal was to meld architecture, media, and entertainment. "We wanted to personify what was going on inside the studio and use media to make the face of the building entertaining," Bonds said. "It's very exciting. The result was a sculpted board that conforms to the building and keeps changing. The LEDs also allow us to break up the screen or

make it one large screen."

Bonds noted that the flexibility of LED boards make programming possibilities endless. "Our research and development group had been working on this for a while. LED is a very flexible technology and I think we'll be seeing a lot more of it in the future."

The board accepts real-time video feeds and broadcast-quality graphics and will air live programs such as *Good Morning America*, *World News Tonight*, and *Monday Night Football*, among others.

Nearby is the JumboTron screen with an image area of 18 x 32 ft and will be used by ABC to produce special event entertainment and information daily. Combined, the entire exterior signage for Times Square Studios consumes as much as 3000 to 4000 television sets.

Those tuning into ABC's *Good Morning America* can get a glimpse of the "crossroads of the world" as they sip their morning coffee, unaware that a team of technical wizards created the stunning yet simple solutions that bring Times Square into their homes each day.



**The author:** Toni Page Birdsong is a Los Angeles-based writer who has covered politics, business, and travel for the past 11 years. She was also a researcher for the Hollywood Entertainment Museum and contributed an article to the October 1999 *LD+A* on Jack Harmon's lighting of the sitcom *Frasier*.

(top) Rather than floodlighting, selected mini-compositions accentuate features, providing cohesion throughout the site, safely directing the visitor's movement, while limiting cost. (bottom) Undercounter miniature lamps grazing the stone announce the food/wine bars. Tree downlighting provides caterer tasklighting. (opposite, top) Umbrella-mounted luminaires identify the wine-bar. Trellis-mounted downlighting washes the lawn, providing fill light. Multi-trunked oaks, introducing background depth, require above-grade, below-grade and trellis-mounted uplights for natural appearance. (opposite, bottom) In this grove, uplight locations cover multiple trees, minimizing luminaires required to accentuate trunks and canopy.



# A VINE ROMANCE

**F**ar Niente Winery, located in Oakville, California, was a pre-prohibition vineyard. It had been abandoned and boarded up. It had grown decrepit, time wagging the war it does on anything not maintained.

In 1979, when Gil Nickel bought Far Niente, the 13-acre estate had evolved into a teenage playground for Napa Valley youth. Over the years, Nickel created a beautiful, light-hearted place with his hands, his heart, and a lot of hard work, not to mention money.

It was vision coupled with business sense propelling him onward. The work created a definitive bond, linking him to the land. While experiencing any form of work, menial or otherwise, keeping the sight on the sublime product is often necessary in accomplishing the depth of one's commitment. It was no different with the perfection of Far Niente's aes-



thetic. When it came to lighting, the owner took his time, setting priorities that pushed the lighting farther out of reach. Over the course of one year, the design grew through collaboration into an outstanding production.

The approach was an understated sculpting of the gardens. During their visit, the transience of guests throughout the estate required close attention to vistas and destination, while maintaining the sanctity of a landscape shrouded in night.

"I've worked with Gil on his house in Lake Tahoe, the caves at the winery, his boat, all kinds of things," said Janet Lennox Moyer of MSH Visual Planners, principal lighting designer. "By the time it came to work on the landscape for the winery, I knew him really well as a client and I knew what he liked and didn't like as far as lighting. So, we had a really good working relationship. Not in terms of 'we worked well together'



*Far Niente Winery's mystical aesthetic allows visitors to dream, and forget that they are dreaming. Associate Editor Peter Aaron Weisman conveys the designer's prescription for a brilliant result.*

den, and put the lighting in," she said. "We got it done."

Knowing the format of each other's thought process, owner and lighting designer knew what each other saw when they looked at something, manifesting an obvious success. Michael Stewart Hooker, also of MSH, was the designer responsible for leading the adjustment and aiming of the lights. "The process was a phenomenal procedure, watching Janet design and Gil support," Hooker said. "It was a real team effort between the construction crew, Vintage Electric, the designers, and the Nickels. The whole thing was a marvel of communication. That's what made it such a success. The owners opened up their creative doors to us."

Specific trees were chosen for uplighting, bringing to life the landscape's three-dimensional qualities. Sequoias became grazed by the landscape lighting where before, there had been the obscure ink of night. The two outdoor entertainment areas, the Chardonnay Garden and the Cabernet Terrace, both needed comfortable lighting for a variety of activities. Just as well, the whole estate required travel lighting between parking areas, the Main Winery buildings, and the caves.

but we really knew what each other thought."

For four years Moyer and Nickel walked and drove around the site. "He kept giving me his interpretation of what he would like and then I provided that within my expertise and my aesthetic."

It took four years for Nickel to tell Moyer to begin. Other things were more important at the winery. "Because the landscape lighting was a big commitment, he had to be prepared for it," said Moyer. "One year he had to put in a new bottling line for the winery and that's obviously more important than landscape lighting. The fourth year he decided it was okay."

Moyer added that Nickel's impending marriage expedited the landscape lighting installation, since the wedding would take place in the garden. However, the garden had yet to be designed, much less the lighting. "We had six months, all of us on the design team, to design the garden, build the gar-





(above) 35 W downlighting leads guests up curving stairs, accentuating tree forms and blanketing shrubbery.

(top, right) HPS lighting, reflecting the client's European taste, reveals the winery's form and detail. The retaining wall anchors the view, while halogen uplit trees provide contrast in color and texture.

(bottom, right) This composition grazes Sequoias, uplights the Dogwood, and washes the path and border plants providing a visual destination from another area.



These requirements called for a major undertaking.

The success of the operation might have been in the consultation but the results are a definitive mirror to that process, having received GE Lighting's 1997 Edison Award, a great achievement given the competition. One more reward for a job well done.

The aesthetic energy of the vineyard is that of a J.R.R. Tolkien novel. Visitors walk through gardens and glades mingling wine and the clean, lightweight air of California with pure aesthetic beauty. It is a place that feels of potential, perhaps originating from those who invested their energy into it.

"The overall scheme is lighting the vegetation but there are some places where you really need to see the stairs going from one level to another," Moyer said. "In the main entertainment center, the focus of the lighting is definitely on the food and wine bars. Secondly, it is on some of the other features such as the plant materials and also structures. But showing the landscape is the primary goal."

In many places, using landscape lighting as task lighting was Moyer's primary concept. Downlighting from tree sources reveals Far Niente's roadways and paths in a subtle way, taking the eyes from the light source and directing them to the landscape. This is accomplished by using the most integral facet of the design—the vegetation. Under Moyer's direction, light bounces off vegetation, onto stairs, roadways, pedestrian paths, and more vegetation. Lighting vegetation to reveal the topography embodies the sum total of the production. According to Hooker, creating functional light levels with landscape lighting alone also made for a cheaper design and the absence of poles. Here was the exciting advent of a new creation. Given so much to consider, the design team determined the perfect application and produced it.

The project implemented low voltage, above/below grade MR11, MR16, and PAR38 halogen luminaires for about 80

percent of the lights. The HPS floodlights were all made by Hubbell, with modifications made to the glass lenses. These floodlights are mostly found at the winery buildings, lighting the structures.

Moyer began working on the project before becoming business partners with Hooker. "Michael directed with the focusing of the lights," said Moyer, adding that 50 percent of the ability to create the design's goal is in the conceptual design; 50 percent has to do with focusing. Half of the process is in knowing how to create the effects with the equipment, given where it is. "It is almost as if the artist has two chances to create this piece of art," Moyer said. "One at the beginning when you conceptualize it and then when you start painting. Because what we do is paint with light in landscape lighting."

Even though Hooker was not involved in the conceptual portion of the project, according to Moyer, he was the major force in making sure the aiming was done properly. "He would call me and say, 'I'm over at tree 17 and there are three fixtures here and I think what you wanted to do with them is this,'" said Moyer. "And I would either say yes or no and we would talk about it. I would come back when I could and look around, making the rare adjustment. He essentially took the lead role in a substantial amount of the focusing of the project. "It says a lot for him to be able to pick up on someone else's design, and I had never walked through it with him, explaining what I was doing in any specific location. He adapted to my design."

The aiming took a year and a half to perfect. Recently, a big

oak tree blew over. It was the source of illumination for everything in that specific garden. "It was really unfortunate," Moyer said. "We're talking about a tree that's over 300 years old, so forget about the landscape lighting, losing the tree was tragedy enough. We knew we were going to lose the tree but you never know if it's going to be this year or 50 years from now."

While creating the design, the team realized that records would be essential in the functional maintenance of the system. The system had to be understood by the maintenance personnel in order to provide for its longevity. Given this foresight, landscape architect John Plant, a key player in Far Niente's evolution, worked with the lighting designers to ensure records would provide the most accurate information available. Paul Schreer, of MSH Visual Planners, produced the documentation. There are four general categories that needed recording in order to fulfill the criteria.

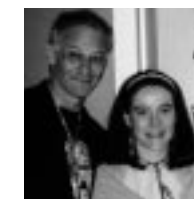
First, drawings to show the final lighting layout were drafted. This included maps with specs to the last lamp. Photographs were the next facet and the only way to keep track of tree-mounted fixtures, in addition to a numbering system for each tree. Specific photos identify the tree and the fixture locations within the tree. A typical photo notes the tree, where the photographer stood, an explanation of where he was looking, the lamping, aiming, and accessories used.

Instructions supply maintenance process information on how to keep the lighting functional, offering a list of suppliers that carry hardware, specific supplies needed, and all brochures

provided by the manufacturer. Lastly, the designers' instructions involve mainly focus adjustment and lamp replacement, among other things. All of this information was collected, compiled, and kept on file for the winery's use.

The job was to design, apply, and aim landscape lighting. The ability to work together in a communicative and creative social environment was the essential, holistic trait that carried through to the sublime product of Far Niente Winery's landscape lighting.

"While focusing the design," Hooker said, "we adopted a catch phrase for, 'You're finished, it's done, good job.' It was, 'It looks good from New York,' because, of course, Jan was in New York at the time. We use that phrase to this day."



**The designers:** MSH Visual Planners, Oakland, CA, partners Michael Stewart Hooker (left), Janet Lennox Moyer (right), Paul Scherer, and the entire MSHVP team all contributed to the success of Far Niente. Over the last 30 years, their work, on an individual and collective level, has received international acclaim and awards. Janet, author of the *Landscape Lighting Book*, is currently a member of the faculty of

the Lighting Research Center and with MSHVP. She works on designing interior and landscape lighting across the U.S. Michael has recently completed the House of Blues hotel in Chicago and the new House of Blues Club at the Mandalay Bay in Las Vegas. He is also a new IESNA member. Together, Design Principals Hooker and Moyer have finished the first phase of landscape lighting for the Wade Oval at University Park in Cleveland, and like Far Niente, are continuing on to future phases. MSH is an IESNA Sustaining Member.

# GLOOM IS DOOMED

*As Yukio Akashi discovered, a little bit of sparkle can increase the brightness perception of a gloomy room.*

Rooms that appear gloomy even though they meet E recommendations will soon become distant memories. Today, luminaires with low-luminance parabolic louvers are a common choice, especially for office environments, but they can make a room appear dark and gloomy even when measure-

ments show it is lighted sufficiently. Small sparkle elements, which give us cues for identifying how much light is coming from the luminaire into a room, remove the gloominess without increasing energy consumption, and they are changing the future of luminaire design.

be any small piece of paper or thin cardboard folded into an L shape. Psychologists sometimes use Mach cards to study perception, and these studies have shown that perceiving the position of a light source plays an important role in perceiving how surfaces of objects are illuminated.<sup>2-4</sup>



Figure 1

ments show it is lighted sufficiently. Small sparkle elements, which give us cues for identifying how much light is coming from the luminaire into a room, remove the gloominess without increasing energy consumption, and they are changing the future of luminaire design.

## Luminaire design and brightness perception

Good luminaire design takes advantage of the ways humans perceive light. One term used in the study of human perception is brightness perception. To understand this term, let us consider what happens in the brain when the eyes observe a Mach card.<sup>1</sup> A Mach card can



Figure 2

Let's try our own experiment with a Mach card. Fold a business card in two and stand the card up on a desk so that its bent edge is toward you as shown in **Figure 1**. Use a table lamp to illuminate the left surface of the bent card. The luminance of the left surface should be higher than that of the right surface.

Now, close one eye. Gaze intently at the card until the bent edge appears to be lying flat on the desktop instead of standing perpendicular to it, as if the card were a book lying on its spine. Once this change in perception happens, the appearance of the two surfaces will also change dramatically. The bright left-

hand surface seems to emit light by itself, and the dark right-hand surface looks as if it were painted gray. At this moment, lightness consistency—another perceptual term describing the way white surfaces continue to appear to be white in spite of changes in illumination—completely disappears.

What interferes with the lightness constancy of the bent card? To answer this question, let's assume we are actually seeing a bent card lying on a plane, as in **Figure 2**. Note that the card is in a different orientation from the previous example. Assuming the bent card is illuminated from the left by a table lamp in the same way as before, the table lamp cannot illuminate the card's left-hand surface, but can illuminate its right-hand surface. The right-hand surface, which appears to be illuminated by the lamp, should be brighter than the left-hand surface (**Figure 3**). If, however, the luminance of the right-hand surface is lower than that of the left-hand surface (**Figure 4**), the human brain attributes the apparent brightness of each surface to the characteristics of the surfaces and assumes that both sides have completely different reflectances. The brighter left-hand surface appears to be emitting light, and the darker right-hand surface appears to be painted gray.

This example illustrates that, when viewing any object, people always take the direction of the illumination into account whether they are conscious of it or not. The human brain sometimes gives up even lightness consistency in order to eliminate an apparent contradiction between the appearance of the surface and the direction of illuminance in relation to the surface.



Figure 3



Figure 4

Hochberg and Beck's 1954 study shows the effect of perceiving the direction of illumination on brightness perception.<sup>2</sup> They carried out an experiment using a trapezoid as a visual stimulus (**Figure 5**). A trapezoid standing on a desk can appear to observers in either of two ways: as a trapezoid standing upright on the desk or as a square lying flat on the desk. In the experiment, the position of a spotlight was adjusted four ways. The subjects could see the position of the spotlight and the orientation of the beam. They were asked to evaluate the surface lightness of the visual stimulus (the trapezoid) by using a grayscale placed in the background.

the orientation of illumination can influence people's perception of how much light is present.

When we enter a room lighted by low-luminance, parabolic-louvered ceiling luminaires and look at the louvers, their luminance is so low that the lights appear to be turned off. Because no light seems to be coming from the luminaires, the room looks dark relative to the task illuminance.

Making the light visible may give us

more prominent cues about the location of the light source and the amount of light coming from the light source. Therefore, the luminance of the louver should increase. Although high luminance often causes discomfort glare, reducing the size of the luminous element may ease discomfort glare. As Einhorn suggested, a small light source does not cause discomfort glare even if the luminance is high. Small luminous elements with high luminances, such

*people  
always take  
the direction  
of the  
illumination  
into  
account  
whether  
they are  
conscious  
of it  
or not.*

Illumination that subjects perceived to be parallel to the orientation of the trapezoid made it look lighter than illumination they perceived to be perpendicular to the trapezoid, even for the same luminance. This phenomenon may occur because the human brain assumes that less light falls on a surface from illumination parallel to the surface than from illumination perpendicular to the surface. These findings suggest that the location of the light source and

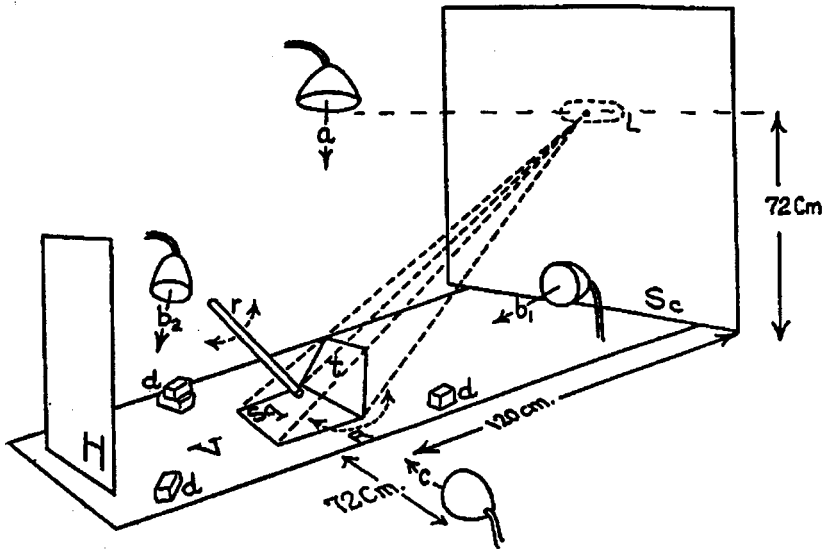


Figure 5—Apparatus for presenting the same target at different apparent slants and illumination conditions. Setup employed by J.E. Hochberg and J. Beck.<sup>2</sup> A bar and several solid bodies are given as cues to notify that the trapezoid is standing on the desk

as the elements of a chandelier, appear to sparkle instead of causing discomfort glare.<sup>5</sup>

Akashi et al. verified that luminous elements enhanced brightness perception, especially when the luminous elements appear to sparkle.<sup>6</sup> For this work, they defined the term “luminous element” as an element of a luminaire that emits or reflects light. This experiment used a test matching brightness perception for two scale-model offices (a reference office and a test office) under various lighting conditions in which the luminance, size, and background luminance of the luminous element differed. The size of the luminous element was changed from  $1.5 \cdot 10^{-5}$  to  $1.0 \cdot 10^{-3}$  sr, which is equivalent to the apparent size of a square with sides from 19 to 158 mm viewed at a distance of 5 m. Looking at the reference office, the subjects could see a luminous element. There were no visible luminous elements in the test office.

Each subject compared the brightness impressions of the two offices and adjusted the illumination level on the model desk so the two offices looked the same. After each adjustment, the illuminance of the test office (Et) and that of the reference office (Er) were measured on the model desks and recorded. The subjects also evaluated the appearance of the luminous element under each condition. The Et/Er ratio for the two offices with equal brightness impression was calculated

under each experimental condition.

Figure 6 shows the Et/Er ratios. The number and size of each circle represent the Et/Er ratio for the two rooms with equal brightness perception. Three kinds of mesh patterns on the circles indicate the evaluation results for the luminous elements' appearance. The contour in Figure 7 shows ranges of equal Et/Er ratios calculated from Figure 6. The dashed white curve in Figure 7 shows the borderline between comfort and discomfort (BCD) under a background luminance of  $50 \text{ cd/m}^2$ , obtained by a calculation based on Einhorn's proposal.<sup>5</sup>

The conditions above the BCD curve cause discomfort glare. Comparing the BCD curve in Figure 7 with the results of the evaluation of the luminous ele-

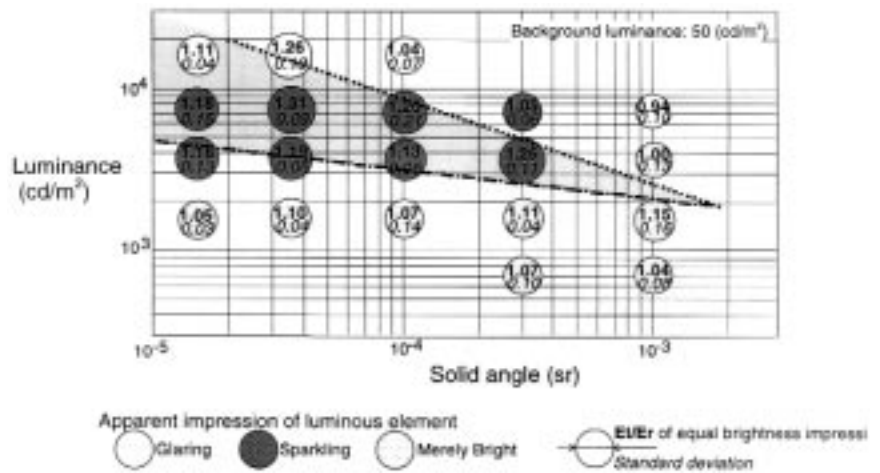


Figure 6—Results of the experiment conducted by Y. Akashi, et al.<sup>6</sup> The larger the ratio (Et/Er), the larger the effect of the sparkle element on the overall brightness impression.

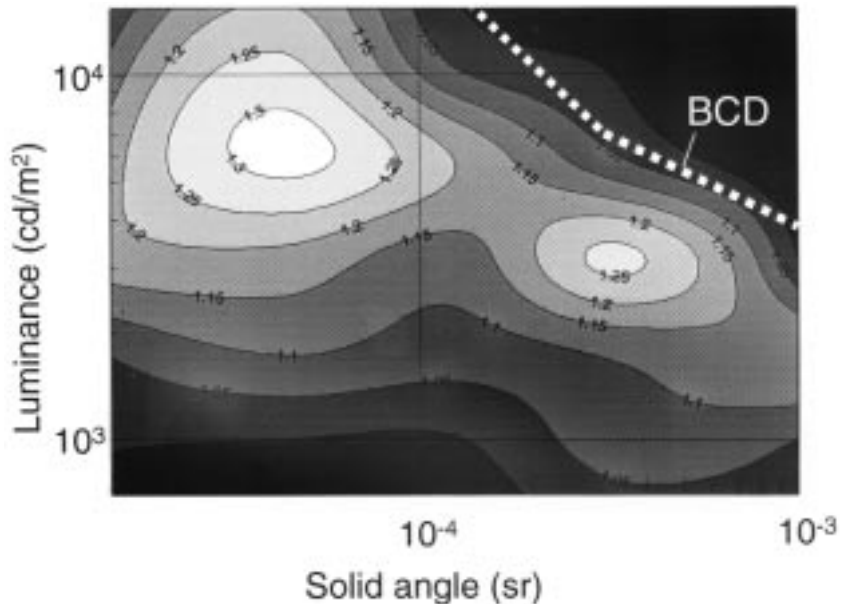


Figure 7

ments' appearance shows that the luminous elements under the BCD curve appear to sparkle. Comparing the contour of the Et/Er and BCD curves shows that conditions in which the Et/Er ratio is higher than 1.0 do not cause discomfort glare. If we carefully choose the size

*brightness  
perception  
is not  
always  
determined  
by  
illuminance  
on the  
task*

and luminance of luminous elements according to **Figure 7**, the luminous elements appear to sparkle and increase brightness perception without causing discomfort glare.

These results suggest that sparkle elements increase the brightness perception of a room. The results also confirm that brightness perception is not always determined by illuminance on the task—the luminous elements used in the experiment were too small to increase the total amount of light. The higher brightness perception comes from the luminances of the sparkle elements, and these luminances are so high that observers can easily see that sufficient light is coming from the light source. The sparkle element does not cause discomfort glare because the solid angle is very small even though its luminance is high. This work confirmed the principle of brightness perception. Now, let's explore possible applications.

### **Brightness perception applied in the form of sparkle elements**

Lighting manufacturers can easily apply sparkle elements to practical lumi-

naire products. For luminaires with small-celled parabolic louvers, manufacturers can paint all four inside surfaces in some of the cells white. The white cells will diffuse the light from the fluorescent lamps and appear to sparkle. Another alternative is square opal acrylic panels fitted into some of the small cells. These panels serve as sparkle elements, as Matsushita Electric Works demonstrated by adding small pyramid-shaped acrylic panels to some of their products.

For specular-finish parabolic louvers with large cells, suspending a small white cone from a cell of the louver may reduce gloom. A similar approach has already been applied to some downlights that have a plastic or glass ring suspended below the opening reflecting light from the lamp. In some other luminaires, the edges of the parabolic louvers might appear to sparkle if some optical device could convey enough light from the lamps to the louver edges.

For indirect luminaires suspended from the ceiling, a thin slit cut through the side panel and the reflector of the luminaire so that it appears to sparkle

# Lighting manufacturers can easily apply sparkle elements to practical luminaire products

may increase observers' brightness perception of the room.

As we can see from these examples, sparkle elements that make use of the principle of brightness perception can improve luminaire design. In years to come, as both lighting designers and end-users become more aware of the advantages of sparkle elements, new luminaires using this approach will be enthusiastically welcomed into the marketplace.

## Acknowledgment

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# LUMINAIRE APPARENT

*The T5 high-output lamp has seemingly taken the lighting world by storm.*

*Peter Franck sorts through the hype to give us the facts about this new lamp.*

There's a new light source on the market—the T5 high-output lamp. And, due to a number of impressive advantages, it's growing in popularity by leaps and bounds. Like all innovations, in the early stages it is difficult to sort through all the initial product claims. What can this new light source really do? What are its advantages and limitations? Is this the right lamp for the job? Is this lamp for real, or is it all hype?

## Development History

The standard T5 lamp was introduced in Europe several years ago. Its small diameter appealed to the European market, where slim design was fashionable. The new lamp also provided a decent energy package, providing around 92 maintained lumens per watt. Since magnetic ballasts were commonly in use,

this new lamp and ballast combination provided significant energy savings in comparison to the status quo. This combination of small size and efficiency was just what was needed, and European sales soared.

The initial American response was slower. The T5 lamp was introduced to the North American market around 1996. While some designers started using T5 luminaires right away, early sales were not enthusiastic. There were several reasons for this. For one, recommended light levels in the U.S. are higher than in Europe; thus, designers are trying to get more light out of fewer lamps or fewer luminaires. The new T5, however, had similar output to the T8 lamp, but not more light. Further, cost is a major concern in North America. While Europeans are willing to spend

more on visually interesting lighting, the North American market is driven by cost. And since the costs of ballasts and lamps for T5s would often be twice that of T8 lamps and ballasts, the expense of the new technology appeared prohibitive. North American designers wanted it all: smaller luminaires, more light, lower installed cost and lower operating cost. So, when the T5 high-output came to the market in 1998, there was much excitement that it might address many of these needs.

## High-output Means Superior Output

The standard T5 and T5 high-output are exactly the same in diameter and length, but there is a substantial difference in light output. The 4-ft version of the standard T5 lamp is rated at 2900 initial lumens, similar to a T8 lamp, but the T5 high-output is rated at up to 5000 lm, giving about twice the maintained light output of a T8 lamp (see **Table 1**). This means some projects have the potential to be illuminated with fewer fixtures or lamps, delivering cost savings on installation and long-term maintenance charges.

## Small Scale

The combination of fewer and smaller lamps implies that smaller fixtures are possible. The T5 high-output lamp is the same size as the standard output T5, and so has the same advantages of scale that permit small luminaires. The 5/8-inch diameter is almost 40 percent smaller than the T8 lamp, and nearly 60 percent smaller than a T12 lamp. This means that luminaire profiles can be scaled down to allow for more sleek designs.

In addition to a smaller diameter, the length is also slightly shorter than a T8 lamp. The 4-ft T5 lamp is actually 1163.2 mm (45.8") long from pin-end to pin-end, permitting easy integration into 4-ft module ceiling grids, or linear products with mounting on 4-ft increments.

## Impressive Lumen Maintenance

Lumen maintenance refers to how well light levels are maintained over time. Both T5 and T5 high-output lamps were designed with lumen maintenance in mind. While many T8 lamps drop to 92 or even 85 percent of their original

Table 1—This chart compares the light output for four various four-foot lamps. The combination of higher ballast factor and high lumen maintenance means that one T5 high-output lamp gives about the same light output as two T8 lamps, as well as similar efficacy.

	Lamp lumens	X	Ballast Factor	X	Lumen Maintenance	=	Maintained Light Output	Watts	Maintained Efficacy (Lms/W)
Two T8 lamps, magnetic ballast	3050 lms x 2		0.875		0.85		4537 lms	80 W	57 LPW
Two T8 lamps, electronic ballast	2900 lms x 2		0.875		0.92		4669 lms	58 W	81 LPW
Two T5 lamps, electronic ballasts	2900 lms x 2		1.0		0.95		5510 lms	60 W	92 LPW
One T5 high-output lamp, electronic ballast	5000 lms		1.0		0.95		4750 lms	59 W	81 LPW

light output over their life span, the T5 lamp is designed to keep more than 95 percent of its light output throughout the rated life of the lamp. This further enhances the designer's ability to use fewer lamps to light a space.

### **High-temperature Operation**

If you've looked at the T5 literature, you may have noticed that the light output for T5 and T5 high-output is listed with a peak light output at an ambient air temperature of 35°C (95°F), much hotter than the more typical measurement temperature of 25°C (77°F). This was a deliberate design feature to account for the fact that compact and enclosed luminaires often get quite hot

of the T5 high-output. But the increase in efficiency that is possible with fewer lamps may be able to boost the overall luminaire output, making the T5 high-output an energy-efficient solution. Developing such a small lamp with similar efficacy to the T8 is quite a technological achievement.

The standard T5 lamp has an even higher efficacy than the T5 high-output version. For these reasons, it may make more sense to spec the standard T5

lamp on some jobs.

### **The Fine Print**

With all these features, the T5 high-output lamp sounds like the perfect light source. You might be wondering why everyone isn't using this lamp, and if the T8 lamp will soon disappear into oblivion. Like most innovations, it is easy to get excited about the features without looking at the "fine print." While none of the following issues will prevent the new

*Is this  
the right  
lamp  
for the  
job?  
Is this  
lamp  
for real,  
or is it  
all hype?*

inside. (It's important to note that with this lamp, heat build-up can be an advantage, as the lamp will generate the most light at the higher temperature. This effect can mean that luminaires with the T5 high-output lamp can have unusually high efficiencies, potentially even higher than 100 percent.)

### **High Efficacy**

This combination of high-temperature operation and good lumen maintenance delivers a decent performance of around 81 maintained lumens per watt (**Table 1**). This is similar to a T8 system, but not superior. In fact, certain T8 lamps with instant-start ballasts can exceed the effi-

lamp from finding great market acceptance, they are all important to consider.

## Temperature

One consequence of more light in a smaller lamp enclosed in smaller fixtures is heat, and lots of it. The designers of this light source realized this, and so designed it to have peak light output at 35°C (95°F) air temperature. This means that the ideal situations for this lamp are different than for a T8 lamp, which has a lower operating temperature. In cooler locations like outdoor installations, for example, the T5 lamp may not perform as well.

The temperature effects of the T5 high-output lamp should affect luminaire design as well. In one fixture design, where heat build-up causes a T8 lamp to dim substantially, the T5 lamp may actually brighten. And in an open fixture with lots of circulation, the T5 lamp may burn less bright. The effects of the lamp's operating temperature are included in the luminaire efficiency value for the fixture. To achieve optimal

performance, designers must be careful to balance the optical performance of a luminaire with the temperature characteristics of the lamp.

Another effect of the high temperature deals with end-of-life operation. Due to the lamp's small diameter and high-frequency operation, temperatures can grow at the lamp base toward the end of life, causing cracking in the bulb wall. For this reason, all new ballasts for T5 lamps are required to have "end-of-life" circuitry. This electronic feature shuts off power to the lamp when its functioning becomes impaired. This may explain why the average lamp life is rated at 16,000 hours rather than the 20,000 hours typical of many T8 lamps. This time difference is an important factor in calculating the lifetime cost of maintaining the system, since T5 lamps may need to be replaced more often.

## Brightness

Temperature is not the only issue. The bulb wall surface of the T5 high-output lamp is also very bright. Concerns about

this brightness have pushed manufacturers toward using it with indirect luminaires, where the lamp itself is never viewed directly by the users of the space. If a direct/indirect luminaire is going to be used, it must be properly designed and engineered to minimize glare. Specifiers may also want to consider the use of standard T5 lamps in direct/indirect fixtures, to take advantage of the higher efficacy and reduced brightness. Even though a standard T5 is brighter than a T8 lamp, the T5 high-output lamp is brighter still.

## Size

We've already mentioned that the 5/8-inch diameter of the T5 high-output lamp is almost half the size of the T8 lamp. Many people have gotten excited about this, and assume that the luminaire size can also be reduced by half. This is forgetting the ballast, which must always be included in or near the luminaire. In fact, the T5 high-output ballast currently available, while quite small, is actually larger than several ballasts now

available for T8 lamps. Thus, while the small lamp and ballast size of the T5 does allow for smaller luminaires, there is a limit to this reduction.

### Cost

Any discussion of new lighting technologies will lead ultimately to the question of cost. The high light output of the T5 high-output lamp produces almost twice the light output of T8 lamps, meaning one T5 high-output can take the place of two T8 lamps. The ramifications of this are significant: designers can reduce the number of lamps in a luminaire, making it smaller or, alternatively, they can reduce the total number of luminaires in an installation. Reducing the size of the luminaires and the number of luminaires to install could significantly reduce the cost of the overall project, and greatly improve the economics of upgrading to a better lighting system.

But, while material and number of fixtures may have gone down, lamp and ballast costs have gone up. As with the standard T5 lamp, the costs for T5 high-output lamps and ballasts are significant. At the present time, with the ballast more than twice the cost of an equivalent T8 ballast, and T5 lamps almost five times as expensive as a standard T8, more than one designer has balked at the use of the new lamp technology. Remember, the cost equation can be balanced by reducing either the number of lamps or the total number of fixtures in a specific installation. With sales increasing and competition growing with both ballasts and lamps, prices are also bound to start dropping in the near future.

### Availability

Cost is not the only issue for managing a project, but also the availability of the lamps and ballasts. Because of the success of this product and the high demand, lead times for getting lamps and ballasts have increased recently. Since the product is so new, lamps are often difficult to find through normal distribution channels, although this is likely to change as production is ramped up to meet the overwhelming early demand.

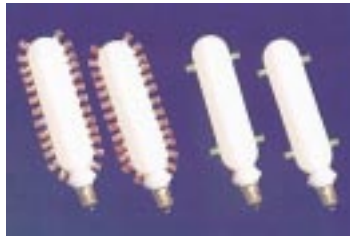
Introducing a new light source into the market is always a risky venture. The lamps, ballasts, and luminaires must all

come to market at about the same time, and be available at reasonable prices. The new light source must also add some benefit that other lamps cannot supply; or else the tendency will be to stay with existing technology. The T5 high-output lamp's combination of small size and improved output make it an ideal source in many new applications. The rapid expansion of sales in recent months is proof that the benefits of this light source are not hype, but reality.



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received a Master of Science in Lighting from the Lighting Research Center at RPI in New York prior to joining Ledalite in 1993. His current research interests are focused on photometry, control systems, and optical designs for luminaires.



Circle 100 on Reader Service Card.

Lumatech announces a new **LED** energy-efficient lighting product to retrofit existing exit signs. Named the "XK" series, it is available for both red and green illuminated signs. Shipped in a kit, the XK meets the standard UL924, NFPA Life Safety Code 70 and 101, and are listed with ETL.

# LIGHT PRODUCTS



Circle 99 on Reader Service Card.

Artemide Inc. introduces e.light, a new lighting source and concept. e.light is a **luminaire** designed to deliver a limited amount of light for tasks such as computer operation, reading, writing, etc., with no aid or interference from other lighting. Utilizing the latest in cold cathode technology for lighting, e.light is environmentally friendly, having a low 3 W energy consumption while providing stability of color temperature (3000K) through the life of the bulb. The Microlight Technology allows e.light's 3 W lamp to provide light comparable to 15 W of incandescent lighting. Due to the compact size of the bulb and the near absence of heat, fewer materials are required to insulate and protect thereby further enhancing the envi-

ronmental aspects of e.light. It also comes in recyclable cardboard packaging and is available in your choice of six vibrant colors.



Circle 98 on Reader Service Card.

Lutron introduces One Percent Hi-lume dimming **ballast** to control T5 high output linear fluorescent lamps. The new ballast features a physical cross section that is one-inch high by 1.18-inches wide. Ideal for cove or indirect lighting, the T5 HO Hi-lume ballast features three-wire line voltage control technology for the most consistent fixture-to-fixture dimming performance. It also offers low harmonic distortion throughout the entire dimming range to maintain power quality integrity, and inrush current limiting circuitry to eliminate circuit tripping, switch arcing, and relay failure. Like other Lutron ballast products, the new Hi-lume ballast includes end-of-lamp-life protection to ensure proper lamp operation throughout the entire lamp life cycle. Miswire protection also helps eliminate potential failures caused by installation miswiring.



Circle 97 on Reader Service Card.

Vistaform provides energy-efficient, directional lighting for patient overbed installations in a wide range of healthcare and institutional facilities. A close-to-the-wall housing design with top and multiple switching options, allows a single Vistaform unit to function as an **ambient uplight, patient downlight, medical examination light, and nightlight**. They are offered in a choice of four T5 compact linear fluorescent lamps, with two high-

power-factor Class P, A sound rated Cbm ballasts, for separate control of the uplight and downlight.



Circle 96 on Reader Service Card.

Holophane introduces Prismglo Hekaton **Luminaire**, a new shape to this line of retail, commercial, and industrial fixtures. The luminaire offers controlled uplight and downlight with advantages including low brightness prismatics, balanced horizontal and vertical illumination, and reduced direct and reflected glare. The fixture has a high efficiency ballast and promotes wide spacing between units. The luminaire, which may be used with 150-400 W HPS, 175-400 W metal halide, and 500 W incandescent lamps, is UL listed and SCA certified.



Circle 95 on Reader Service Card.

Hatch Transformers, Inc. introduces a miniature version of their electronic metal halide **ballast**. This unit is available in both 35 W for M130 lamps and 70 W for M98 lamps. Proprietary circuitry allows the ballast to be remotely mounted from the lamp, up to 30 feet away. Both units are high-power-factor, low THD, and class P type 1 outdoor. The 35 W package dimensions are 3.26-inches long X 2.96-inches wide X 1.28-inches high. The 70 W package dimensions are 3.96-inches long X 3.06-inches wide X 1.44-inches high.



Circle 94 on Reader Service Card.

Prescolite has newly patented the Virtual Source reflector optics for recessed fluorescent downlights. The **reflector optics** may be specified on a wide variety of Prescolite compact fluorescent, metal halide, or incandescent downlights, for use in indoor commercial, industrial, institutional, or residential lighting applications. Virtual Source maximizes light output and minimizes glare. The Virtual Source uses a typical two-lamp, 42 W triple tube recessed housing, with patented Virtual Source reflector optics and a nine-inch aperture, exceeding 70% light efficiency.



Circle 93 on Reader Service Card.

JKL Components Corporation introduces a new line of surface-mount incandescent **lamps** as cost-saving alternatives to blue and white LEDs, with greater brightness and light distribution. The lamps' profiles are as low as 5.5 mm and the entire line is available on reels for automated processing. The lamps feature either two- or three-piece construction, the latter with an integral silicone filter cap. These filter caps can be color matched to virtually any standard, and are designed to withstand high temper-

ature reflow processes up to 260°C. The line is available in multiple size and brightness levels up to 12 lumens, and from 5 to 28 V.



Circle 92 on Reader Service Card.

Labsphere, Inc. has introduced Fluorescence Standards thermally stable, reproducible **fluorescent reflectance**. They provide high lambertian, thermal stability and consistent reproducibility for front surface fluorescence applications in the paper, textile, and cosmetic industries. Spectralon Fluorescence Standards are available in 1- and 2-inch diameter sizes in a variety of spectra. Labsphere specializes in the development of custom fluorescence standards to meet customers' specific requirements.



Circle 90 on Reader Service Card.

Metrolux introduces its LPL Series Linear Fluorescent **luminaires**, vandal-resistant, abuse-resistant, high-output linear fluorescent luminaires. The LPL 2000 & HO Series luminaires are characterized by a contemporary, contoured, linear architectural design, that presents a smooth, low-scale profile against vandalism, abuse, or inadvertent damage. The design resists accumulation of debris on its surface and cleans easily. End caps knock out for ready through-wire coupling of fixtures to accommodate continuous-row installations. Sealed and gasketed lensing withstands up to 15 psi water

spraydown. An energy-efficient, Class P HPF magnetic ballast is rated to 20 degrees F, with flicker-free operations in cold environments. Illumination is provided by two T8 or T12 high-output linear fluorescent lamps. All fixtures are UL and CUL listed for use in wet locations and are ADA (Americans with Disabilities Act) compliant.



Circle 89 on Reader Service Card.

Progress Lighting is offering the Hide-a-Lite System, undercabinet **fixtures** which include both track lighting and single unit options, feature low-voltage, energy-efficient lighting, and flexible for varied use.



Circle 88 on Reader Service Card.

Venture Lighting presents 175 W Uni-Form pulse start metal halide **lighting system**. The 175 W system offers a high lumen per W pulse start lamp with greater light output, longer life, and better maintained lumens that the standard pinched body 175 W metal halide lamp. It provides 50% longer life (15,000 hours) and 25% more initial lumens than the standard. Available in medium (E26) or mogul (E39) base and in compact ED-17 and ED-28 jacket sizes, the lamp comes with 3700K and 4000K

color temperatures and a color rendering index (CRI) of 65 or 70.



Circle 87 on Reader Service Card.

Norwell Mfg. has produced the Allier Series (1535-1539). These outdoor **fixtures** are available with a solid cast backplate and cast arm and offers a statement of elegance and strength. These castings will

endure for years and the optic hand-blown Vianne glass will illuminate a home with rays of light. Available in two sizes, they are offered in satin, flemish, sienna, and gun metal.



Circle 86 on Reader Service Card.

Hatch Transformers, Inc. introduces a track version of their electronic metal halide **ballast**. This new unit is available in both 35 W for M130 lamps and 70W for M98 lamps. They feature safety shut down for short circuit, no lamp, hot lamp, and end of lamp life. Both units are high power factor (0.99) and low THD (<5 %). The 35 W package dimensions are 6.6-inches long X 1.5-inches wide X 1.4-inches high.



Circle 85 on Reader Service Card.

Edison Price Lighting introduces Minima MH **fixtures**, track-mounted accent lights for use with metal halide PAR-30 and PAR-38 lamps (spot and flood), to its SightLine track system. The fixtures use 39 W, 70 W, and 100 W metal halide lamps with a life as long as 9,000 hours. They have a color temperature of 3000 K, are available in matte white, matte black, or any custom finish.



Circle 84 on Reader Service Card.

Cooper Crouse-Hinds FVS and eLLK Fluorescent Lighting **Fixtures** feature energy efficient electronic design and engineering. Part of Crouse-Hinds comprehensive Spec-One line of electrical products, these factory-sealed lighting fixtures meet all worldwide Zone and Division standards. Working in tough environments, the FVS and eLLK are versatile fluorescent and suitable for indoor or outdoor use with a shatter-resistant nylon or polyester lens, the FVS fixture offers extra protection from sudden impact and mechanical abuse. The eLLK type fixture features corrosion-resistant construction with a non-metallic body, gasketed lenses, and a lens locking system for an IP 66, NEMA 4x rating. With auxiliary battery backup, using a microprocessor control monitoring the backup unit's charging functions, it provides one lamp operation for 1.5 hours should the power go out. The electronic ballast operates at a full voltage range, from 110 to 250 VAC at 50/60 Hz. Its ballast permits lamps

to operate independently and at lower ambient temperatures, as low as -25 degrees C.



Circle 83 on Reader Service Card.

AE7051, a highly crafted brushed aluminum **fixture** from Advent Lighting, is designed for outdoor applications. The design can be modified by changing the window configuration, selecting from a variety of finish combinations, and varying

both the up and downlight illumination. Standard sizes are 22" and 30" high, 13.5" wide and 9.5" deep. Fixtures use a combination of fluorescent and metal halide lamps.



Circle 82 on Reader Service Card.

Columbia Lighting introduces Solaris, a direct/indirect **luminaire** designed in three fixture lengths, 28-, 96-, 144-inch; three lamping options, one, two or three lamps; and, along with reflectors, four light level distribution settings, 40 percent up with 60 percent down, 0 up with 100 down, 20 up and 80 down, and 85 up with 15 down. Installation and mounting are standard to fixture length and industry specs.